The Journal of the
American Medical Association
Published Under the Auspices of the Board of Trustees

Vol. LXIII, No. 20 Chicago, Illinois November 14, 1914

SOME FACTORS TENDING TOWARD ADEQUATE INSTRUCTION IN NERVOUS AND MENTAL DISEASES*

WILLIAM W. GRAVES, M.D.
Professor, Department of Nervous and Mental Diseases, St. Louis University School of Medicine
ST. LOUIS

The earnest effort on the part of the Council on Medical Education of the American Medical Association to raise the standard of medical education in the United States has met a gratifying measure of success. Its beneficent influence has been revealed in several directions. One of its achievements is the formulation of a "standard curriculum" through a subcommittee of one hundred medical educators. This curriculum, however, is intended to be entirely educational and suggestive and the "Council does not consider it in the interest of true progress in education that any standard curriculum whatever shall be uniformly adopted by all medical schools." Even though it was not proposed as a fixed standard, formulated as it was by one hundred prominent educators, it receives general recognition and is bound to be used as a model and thus to have definite influence on medical education in this country.

Medical curriculums are doubtless formulated on the fundamental principle that time and place allotted to a given branch should be proportionate to its importance in the production of competent practitioners of medicine. When we consider the intimate and reciprocal relations of the nervous system with other systems and organs of the body, its highly specialized structures and functions, and, moreover, the conditions and diseases which affect it both primarily and secondarily, the importance of adequate consideration of the nervous system in health and disease in any scheme of medical education becomes obvious.

Does the standard medical curriculum and do the medical schools of this country allot to neurology and psychiatry time and place proportionate to the importance of these branches? This is a serious question and one well worthy of consideration by medical educators generally and particularly by those professing knowledge of the subjects identified with this Section. It would seem that we are justified in answering the question in the negative when we consider the lack of interest by medical students in the clinical aspects of neurology and psychiatry as contrasted with the definite interest in the anatomy and physiology of the nervous system during the first two years of medical school work; the almost universal feeling of incompetence in the recognition of nervous and mental diseases by recent graduates; the apathy, and I may say indifference, toward the easily discernible signs of mental and nervous diseases by medical men generally (excepting by those specializing in these branches and not always by these); the ignorance displayed in our courts concerning them, and the existence and growth of the several "isms" and "cults" which thrive on the credulous, the unbalanced and the nervous.

If we seek to determine the reasons for this state of affairs, two possibilities are at once suggested; either little is definitely known about the nervous system and its diseases or else our medical teaching is inadequate. Surely no one will contend that the general indifference toward neurology and psychiatry existing among the rank and file of the medical profession is due to the state of knowledge concerning these branches. The present state of knowledge is indicated in modern text-books and current literature. Modern text-books on anatomy and physiology devote, respectively, approximately one-fifth and one-third of their pages to the nervous system. In modern text-books on practice fully one-fourth of the total space is allotted to diseases of the nervous system, not including psychiatry, and numerous special works, monographs and journals are devoted to the nervous system and its diseases. Approximately 10 per cent. of the articles published in several leading journals devoted to general medicine, including The Journal of the American Medical Association, are on neurologic and psychiatric subjects. Certainly, the volume of literature does not indicate that little is kown about the nervous system and its diseases. Moreover, the state of knowledge in these fields approaches a degree of exactness comparable to that in other fields. In no other fields are the reciprocal relations between structure and function better known, exemplified and utilized. We have, therefore, for neurology and psychiatry the firmest foundations in the known facts of anatomy and physiology of the nervous system.

Medical knowledge in general is in a state of flux and not all is known in any department that may yet be known. There are many unsolved problems in connection with neurology and psychiatry. But the state of our knowledge concerning the nervous system and its diseases coupled with existing methods of the clinic and the laboratory is so definite that the recognition of, and the differentiation between, the organic and so-called functional diseases are at least among the possibilities of medicine.

The present degree of indifference on the part of the profession generally toward neurology and psychiatry, is, therefore, not due to the inadequacy of knowledge at the present time; hence it would seem that we are justified in concluding that these subjects are not adequately presented in our medical schools.

---

* Chairman's address, read before the Section on Nervous and Mental Diseases, at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, June, 1914.

If instruction in neurology and psychiatry is inadequate—that is, not proportionate to the importance of these branches—let us direct our attention to some of the factors which appear to be at the bottom of the difficulty. We must recognize defects before we may hope to eliminate them. The chief defects in instruction in our medical schools in these branches will probably be found, first, in instructors and methods; second, in correlation of structures and functions of the nervous system with clinical neurology and psychiatry; third, in correlation of neurology and psychiatry with other clinical branches; and fourth, the time devoted to these subjects and their place in the curriculum.

I. INSTRUCTORS AND METHODS

"Efficient teaching requires three essential conditions: (1) complete mastering of the subject-matter on the part of the teacher; (2) a clear notion of the aim of the teaching, and (3) well chosen methods of accomplishing the aim" (Jackson[1]). Adequate instruction in neurology and psychiatry can be expected only from those who possess adequate knowledge of the structures, functions and diseases of the nervous system, who are trained in the methods applicable to the investigation of these and who are otherwise thoroughly grounded in the principles of biology and medicine. In the ranks of those who profess knowledge in neurology and psychiatry there are many who approach this ideal. On the other hand, there are many incompetents, some of whom have come from general practice, some directly from medical schools with or without a hospital year or two and not a few who "drift in" after unproductive months or years in sanatoriums and state hospitals. Whether "drifting in" from general practice, directly from the medical school or from the state hospital matters little—the fact remains that such men, without additional training, are not equipped, are not qualified to teach either neurology or psychiatry. And from the unequipped in the ranks come the instructors in these branches in not a few medical schools in this country. The demand for well-equipped instructors in these branches far exceeds the supply. This is another point in evidence of the inadequacy in instruction in the past and emphasizes the importance of better teaching in the future. Better teaching will awaken interest in the student body, and from this interest will come the development of more men better qualified to teach the current knowledge of the subjects they profess—"sifting, analyzing, assorting and laying down principles."

In the medical schools of this country with but few exceptions neurology and psychiatry are combined in one department, and in about one-half the schools this department is an independent department. The importance of these branches and their correlations with each other as well as with every other department of medicine are sufficient reasons for combining them in one department; but there is no valid reason why the two subjects should be taught by the same instructor as is the rule. While it may be possible for one to practice neurology and psychiatry, the volume of previous work in either branch is so great that "sifting, analyzing, assorting and laying down principles" cannot be well done by one man in both branches at the same time. Therefore, it would tend toward more efficient instruction in these subjects if certain instructors in the department confine their energies to neurology and others to psychiatry, because independent instructors could best induct the students into the principles and the practice of the special methods in each branch. The aim of instructors in these branches in the medical school should not be to make "specialists" but to aid the student in the acquirement of such knowledge as will better enable him to recognize disease in general and particularly diseases of the nervous system.

Specialism falls short of its obligations to, and ceases to become a part of, general medicine when its methods of investigation cannot be understood and utilized excepting by the specialist himself. The more specialized clinical branches best meet their obligations to medicine when they contribute their portion in aiding the student to have a better appreciation of the patient as a whole individual. In this age of specialism and short cuts to diagnoses the whole individual is often lost to view. Indeed, he is nowhere more completely buried than in the clinical years in our medical schools. During the fundamental years he is a commanding figure; he awakens interest in the student body; he dominates it. During the clinical years he shrinks into darkness and for many is lost beyond recall—crushed by the weight of specialism, crammed into the tired brain of the student body. The general advance in medical knowledge should render the appreciation of the concept of the patient as a whole individual more thorough, more complete than ever before. That such appreciation is actually less must be due in part to the dominance of specialized branches in teaching during the clinical years. The concept of the whole individual should dominate medical teaching not only in the fundamental but also in the clinical years. The true relations of the parts with the whole should never be lost sight of for a moment.

Vocalized text-book chapters — didactic work — should be largely eliminated; and ready-to-use diagnoses—clinical lectures—should be restricted because neither develops the self activity of the student in the recognition of health and disease. Yet neurology and psychiatry are taught mainly in these ways in most medical schools in this country. This is, probably, one of the most serious defects in instruction in these branches, but the defect is in the instructors and not in the branches themselves.

To train the student in the recognition of disease is the primary aim of medical education. The recognition of disease must precede prevention, and it is the very foundation of all rational treatment. Let there be less teaching of nervous and mental diseases and more of the methods of recognizing them. Let the instructors be counselors and guides and not merely the distributors of ready-made diagnoses. Let their activities be expended mainly in guiding the student in accurate data getting, the very foundation of accurate diagnoses. Let the instructors supply the material made up of normal, functional, organic and mixed states. Let the student do the work and his interpretation of the accumulated data will follow as a natural sequence. It is not to be expected that either his data or his interpretations will always be correct either during his student days or at any time thereafter, but earnest effort in either direction at any time will stimulate his interest and develop his self-activity and his self-criticism. Let the student be guided in simple yet accurate methods in getting data concerning family, personal and present history; and concerning sensory, special sense, mental, motor, reflex, vasomotor, trophic and autonomic reactions and he will secure for himself a working knowledge of neurology and psychiatry—knowledge which he can apply to a better elucidation of the clinical problems in other departments of medicine because an appreciation of the reactions of the nervous system in health and disease gives him a clearer insight into the individual as a whole.

---

[1] Jackson, C. M.: On the Improvement of Medical Teaching, Science, April 12, 1912.

II. CORRELATION OF *STRUCTURES AND FUNCTIONS* OF THE NERVOUS SYSTEM WITH CLINICAL NEUROLOGY AND PSYCHIATRY

Since knowledge of physiology, anatomy, pathology and psychology finds constant application in the interpretation of the symptomatology and physical signs of nervous and mental diseases, students must be able to correlate knowledge of these fundamentals with clinical data. Instruction in each of these, excepting in psychology, is doubtless adequate in the better medical schools. The recognition of the necessity of obligatory work in psychology will doubtless result in speedily remedying this defect in instruction. In the recent Report of the Committee of the American Psychological Association on psychology and medical education[2] it is stated that *in the first two years fully* 10 per cent. and probably as much as 15 per cent. of the total time is devoted to the study of the nervous system, that is, anatomy, physiology and pathology. The same report disclosed the fact that very few schools are actually giving instruction in psychology though "it appears to be the preponderating opinion both of the best schools and of the schools as a whole, that some instruction in psychology is necessary so that students may understand the mental side of their patients, not only of those who are to be dealt with as insane, but also of many who never reach the extreme conditions which warrant their being sent to an institution for nervous or mental diseases."

In order that knowledge of the fundamentals and of the clinic may be correlated, the principle of relative values should receive greater consideration by instructors in these branches. E. P. Lyon[3] has recently indicated the working of this principle thus: "We should do our best from the multiplicity of facts to supply those most likely to be valuable to our students." Doubtless much could be eliminated in the fundamental and clinical years if instructors would give mainly those facts most likely to be of value in the clinic. If mainly usable facts were taught both in fundamentals and in the clinic, the principle of correlation would become more effective because more simplified. But the instructors in the fundamentals are not as a rule trained clinicians; hence they teach most of what is known about their subjects and necessarily much of little practical value for the clinical years. Moreover, the time which elapses between instruction in the fundamentals and in the clinic is so great that the student will have forgotten much of the useful with the useless knowledge acquired in his first semesters.

To further the teaching of the practical in the fundamentals, conferences should be held between the instructors in the anatomy, physiology and pathology of the nervous system and those in the clinic, and a definite plan of instruction outlined. A few type cases demonstrated in the classes of physiology and anatomy will serve to obviate the evil effects of time on the principle of correlation between the fundamental and clinical years. Neilson[4] has recently asked the pertinent question, "Would it violate any sane principle to have the neurologist give a lecture and demonstrate a case of tabes or one of transverse myelitis when the physiology of the tracts of the cord is studied?" This principle of correlation will be further strengthened by the incorporation of two definite recapitulation courses given by clinicians in the beginning of the clinical years: *one consisting in a review* of anatomy, physiology and pathology of the nervous system given by the instructor in neurology, the other in a review of psychology given by the instructor in psychiatry.

III. CORRELATION OF NEUROLOGY AND PSYCHIATRY WITH OTHER CLINICAL BRANCHES

The intimate and reciprocal relations of the nervous system with other systems and organs of the body are the fundamental relations which correlate it with the clinic, which prevent narrowness in those possessing a working knowledge of its structures, functions and diseases, and which render a consideration of its several activities indispensable in the study of the patient as a whole individual. Neurology and psychiatry are *unfortunately considered by curriculum* makers and the profession generally as belonging to the narrowest and least important of specialties, when in fact these branches are special mainly in methods of investigation. The problems connected with them are identical with those of general medicine. A working knowledge of the structures, functions and diseases of the nervous system finds constant application in the study of the individual patient, whatever his disease may be. Hence adequate instruction in neurology and psychiatry is not only dependent on the working of the principle of correlation in these branches between the fundamentals and the clinic, but it is equally dependent on adequate instruction in, and correlation with, other branches of medicine.

Adhering to the principle of relative values, it seems that the kind of instruction most likely to be of value to the student in the clinical years would be in the technical methods utilized in the several clinical branches in the recognition of health and disease. Instruction in these methods, as already indicated, has not been adequate in the department of nervous and mental diseases, and what is true of the instruction in these branches is in a large degree true of instruction in other clinical branches. As a part of the routine examination of the nervous system, for example, the use of the ophthalmoscope, perimeter and laryngoscope, and methods in discerning pupillary anomalies and in determining the functional activity of certain cranial nerves find constant application; yet it is notoriously true that the instructors in the branches to which these methods primarily belong seldom give them adequate consideration. Now adequate instruction in these methods by the department to which they primarily belong aids in developing the self-activity and proficiency of the student not only in these departments but also in other departments. The use of the ophthalmoscope, for instance, is not merely confined to the recognition of certain diseases of the eye but its use is indispensable in internal medicine, pediatrics, surgery, neurology and psychiatry.

---

[2] The Journal A. M. A., March 30, 1912, p. 909.

[3] Lyon, E. P.: Principles of Curriculum Making, Science, May 8, 1914.

[4] Neilson, C. H.: The Teaching of General Medicine, New York Med. Jour., 1914, xciv, 1189.

If methods in the use of a single instrument can find such broad application, how very important it appears that students should be taught methods in data getting in each department for the general recognition of disease and for the correlation of the knowledge in one department with that of every other. The correlation of neurology and psychiatry with other clinical branches can be accomplished by the student only when instruction in method is adequate in each department. Let this obvious principle in pedagogy be practiced, and a working knowledge of the nervous system in health and disease will be within the reach of the future graduates in medicine.

IV. THE TIME DEVOTED TO THE SUBJECTS AND THE PLACE IN THE CURRICULUM

If it be a fundamental principle in curriculum making to allot time and place to a given branch in proportion to its importance in the production of competent practitioners, what place and what time should be alloted to neurology and what to psychiatry in the clinical years? Remembering that each branch deals with the same underlying structures and similar reactions of the nervous system; that in a neurologic condition the mental reactions and in a mental state the neurologic reactions should always be studied; that a study of the individual patient whatever his disorder may be cannot be complete without investigating the several activities of the nervous system and that mental states are quite as numerous and important as neurologic states, then it would seem that instruction in both branches should commence in the very beginning of the clinical years, and should be allotted equal time, given in parallel courses and continued throughout these years.

However great may be the ability of the instructors in the fundamental and the clinical branches and however excellent their methods may be, if instruction in neurology and psychiatry is confined mainly to the fourth year, as is now the case in most of the medical schools in this country, the student cannot acquire a working knowledge of these branches. On the other hand, if instruction in these branches be given from the beginning to the end of the clinical years, the student will be able to correlate them with all other clinical branches. Unless the nervous system is to continue to be considered a thing apart in the concept of the whole individual, as is now the case in most of the medical schools in this country, instruction in the recognition of its reactions in health and disease must logically begin at the moment the student receives his first conceptions in clinical medicine and continue throughout the clinical years.

The standard medical curriculum allots 150 hours in the clinical years, 60 hours in the third and 90 hours in the fourth year. Provision is made for instruction in neurology in the third and fourth years, but psychiatry is placed in the fourth year and is given only 30 hours—15 hours under "Clinical Conferences" and approximately 15 hours under "Didactic Lectures."

TIME AND PLACE FACTORS IN NEUROLOGY AND PSYCHIATRY IN THE CLINICAL YEARS IN EIGHTY-FIVE MEDICAL SCHOOLS IN THE UNITED STATES

Class	No. of Schools in Each Class and Subject Divisions					Total No. Schools Teaching Neurology and Psychiatry in Separate Courses. Years and Average Hours.													Average Total Hours in N. and P. in Each Class in Clinical Years	Remarks
							Neurology						Psychiatry							
	Total Schools	N.	P.	N. and P. Comb.	N. and P. Not Taught	Total Schools	Schools 3d Year	Average Hours	Schools 4th Year	Average Hours	Schools 3d & 4th Years	Average Hours	Schools 3d Year	Average Hours	Schools 4th Year	Average Hours	Schools 3d & 4th Years	Average Hours		
A+	22	20	15	2	0	20	9	49	17	75+	7	102+	1	32	15	30	1	42	114+	2 give elective courses in neurology in the 4th year. 4 teach neuropathology in 2d or 3d year; average hours, 25. 2 teach psychology in 2d or 3d year; average hours, 82.
A	32	21	19	8	2	22	15	44+	18	54+	12	81	1	20	19	33+	1	44	98+	11 teach neuropathology in 2d or 3d year; average hours, 40+. 3 teach psychology in 2d or 3d year; average hours, 40.
B	18	10	7	8	0	10	6	33	10	44+	6	81	0	0	17	34+	0	0	97+	4 teach neuropathology in 2d or 3d year; average hours, 33.
C	13	3	1	7	3	3	2	50	2	50	2	100	0	0	1	40	0	0	74+	1 teaches neuropathology in 2d or 3d year; average hours, 120. 1 teaches psychology in 2d or 3d year; average hours, 40.
Tot.	85	54	42	25	5	55	32	..	47	..	27	...	2	.	42	..	2	..	..	

In order to determine what is actually being done in teaching neurology and psychiatry in the clinical years a study was made of the curriculums as disclosed in 1913-14 catalogs of 22 A plus, 32 A, 18 B and 13 C, a total of 85 medical schools in the United States, this number having responded to requests for catalogs. The results of this study bearing on the factors of time and place are shown in the table.

A consideration of the "standard curriculum" shows defects, first, in the preponderance of both time and place in neurology over psychiatry; second, in that no instruction whatever in psychiatry is given in the third year, and third, that both subjects are taught mainly in the fourth year. The same general defects are apparent in the curriculums of most medical schools as is shown in the tabulation.

The tabulation shows specific defects in the following particulars: first, that 5 out of 85 schools give no instruction whatever in either neurology or psychiatry; second, that as far as can be determined from the catalogs, neurology and psychiatry are combined in instruction under the collective terms "nervous and mental diseases" in 25 of the 80 remaining schools; third, that of the 55 schools teaching neurology and psychiatry in separate courses in both third and fourth years, 27, that is, less than half, give a place to neurology and only 2 to psychiatry; fourth, that whereas in these 55 schools 32 teach neurology, only 2 teach psychiatry in the third year; yet in the fourth year 47 teach neurology and 42 teach psychiatry; fifth, that the average total hours allotted to the department of nervous and mental diseases in the schools of each class is much less than the total hours recommended in the standard curriculum.

Is the total time allotted by the standard curriculum sufficient for adequate instruction even though it were properly apportioned between the subjects? This question cannot be answered until after a trial of what seems to be a proper apportionment of time between the subjects and until the subjects are given a logical place in the curriculum. It seems, however, that the importance of instruction in neurology and psychiatry during the clinical years in the production of competent practitioners should entitle these branches to an amount of time in the curriculum equal at least to that devoted to the nervous system in the fundamental years, which is now approximately 10 per cent., or 200 hours.

CONCLUSIONS AND RECOMMENDATIONS

To the end that an adequate working knowledge of the nervous system in health and disease may come into the possession of a larger number of future graduates in medicine, the following would seem necessary:

1. A better appreciation should be had by medical educators generally of the relations of the nervous system in health and disease to the whole individual.
2. Medical educators should consider neurology and psychiatry as fundamental and not as highly specialized clinical branches.
3. The aim of the instructors in neurology and psychiatry should be to aid the student in the general recognition of disease as well as in the recognition of nervous and mental diseases.
4. Less time should be given to discussion of diseases of the nervous system and more to the practice of simplified yet accurate methods in the recognition of them—thus developing the student's self-activity, self-criticism and proficiency.
5. The principle of relative values should be given greater consideration by the instructors in the fundamental and clinical branches in order that the principle of correlation may be better utilized by the student.
6. More and better apportioned time and a logical place must be allotted to neurology and psychiatry in the curriculums of our medical schools.

Metropolitan Building.

ABSTRACT OF DISCUSSION

Dr. Charles H. Hughes, St. Louis: We are in the transition stage in medicine. We have reached a point at which the medical profession is beginning to recognize the value of psychiatry and neurology in general practice. We have become accustomed to locating disease in the different viscera or systems of the organism and from thence judging as to the condition of the patient. As physicians we should consider the mind and brain as well as the other organs, we should consider the patient himself. Neglect of consideration of the patient has built up a lot of "isms" and "pathies" which by proper methods might have been avoided. Neurology and psychiatry in general practice have until recently been much overlooked in general medicine.

Dr. George Dock, St. Louis: Dr. Graves has made clear most and perhaps all of the important points necessary. I am particularly struck by the fact that people still look on the curriculum recommended by the American Medical Association as a standard, but from Dr. Graves' analysis it would appear that, as regards neurology and psychiatry, the medical schools in the country have not caught up with our standard. That perhaps is not the most important difficulty at present. With regard to the time, I differ from Dr. Graves only in the way of stating the matter. The standard curriculum gave two hundred hours, including the time given to formal courses in neurology and psychiatry, and also to practical work in the wards and outpatient department. It is a great disappointment to us who drew up the curriculum that more of that practical work is not done.

The most important part of Dr. Graves' argument is the emphasis laid on the development of technic. The desirability of this is not sufficiently realized in any branch. Neurology and psychiatry are not alone suffering from certain weaknesses in the method of teaching. Dr. Graves is disappointed because the medical undergraduate is not able to conclude his sensory tests or to recognize pupillary and sensibility changes, etc., as he should. We in medicine find men at the end of the fourth year who cannot positively determine albumin in the urine, or find tubercle bacilli in sputum, although they are easily found, and who are not sure of what they find by percussion and auscultation. We who have been long in the mill realize that the trouble depends on our still faulty method. These boys have not had enough technical training and not enough time in which to work in ward and outpatient department

The student may be taught to test sensibility, pupillary reactions, etc., but unless he works at a lot of concrete examples, as Dr. Graves emphasizes, he does not realize how critically he must work; how much more difficult it is, in the clinic, to detect albumin in the urine or sensibility changes, simply because he has not had the lesson. How will the student profit from a hospital year unless he has been taught to work most critically and unless he has more adequate oversight? We do not sufficiently consider the point that Dr. Graves emphasizes—the need of more and better trained teachers. Perhaps not so many young men are willing to go into neurologic work as in other lines, but the fault is not altogether with the lack of young men. The student goes into a clinic and works as best he knows how; but he has nobody over him to point out that his method of investigating the history or of making clinical and laboratory tests is wrong, and to see that he gets proper training. Everybody who has given the subject thought realizes that the need in every branch of teaching is more actual work with patients, with more oversight by a keen, well educated and specially trained teacher in charge.

Dr. E. E. Southard, Boston: From my experience in teaching neuropathology in the Harvard Medical School, I think one of the most important things in teaching the subject of nervous and mental diseases is to keep the student's mind busy during his whole course with something or other of neurologic interest. The injections of neurologic knowledge should be "spaced injections" during the whole course, with something put in every few months; otherwise the student comes to regard the subject as a matter of no importance. This idea—of neurology as a luxury—is entertained by many internists, and the adequate presentation of these topics may be measured by the degree of interest the internists take. If the internists connected with the school are narrow-minded, neurology and psychiatry will never maintain their proper place either quantitatively or qualitatively. One of the great difficulties in the American system has been that neurology has been regarded as somehow foreign to internal medicine. In Germany and England the neurologist is an internist, and, if called on to diagnose pain incidentally, he at least knows whether it is a case of rheumatism or stomach trouble. American neurologists are rather proud of their ignorance of internal medicine. On the other hand, the American internists are often proud of their ignorance of nervous and mental diseases. This is also true of pathologists. The pathologists that I know have a blind spot for the nervous system, while the same degree of detail in the kidney will arouse a singular tremor of autonomic vibration in them. They do not care to learn the somewhat complicated alphabet of our subject. The nervous system can secure proper attention in medical schools when there is a corporate spirit. One method is through "correlation committees" dealing with cognate topics as they are taught in successive years in the schools.

The only point I could add to Dr. Graves' discussion of the subject deals with the courses that lie prior to the courses of neurology and psychiatry. An elaborate course of neuropathology may not, in all cases, be secured in the second year; but the pathologists may be stimulated to take more pride in a neglected branch of their subject. There are many pathologists whose neurologic lore hardly goes beyond the diagnosis of a tabetic spinal cord, yet they know and teach about the Kupffer cells of the liver. If the course in mental and nervous diseases can be preceded with pathology in a sense broad enough to include neuropathology and a broad-minded internist is beside the neurologist, then I think you may get action. The work being done in connection with lumbar puncture is transforming neurologists, and to some extent psychiatrists, into internists and I predict that within two decades neurology, so-called, will have disappeared, because the internists will have learned about it, and, finding it somewhat simple, they will adopt it. I think that psychiatry will increase in importance because it will take many more decades for internists to get the social point of view. When consideration of the individual in his relation to society obtains, psychiatry will disappear, because everybody will be a psychiatrist.

Dr. C. R. Woodson, St. Joseph, Mo.: Dr. Graves did not intimate that it was necessary that all who studied psychiatry or neurology should be finished psychiatrists or neurologists, but that it is important that the present-day graduate should know enough about nervous and mental diseases either to give himself, or to diagnose that somebody else may give, timely treatment. A routine treatment of unconsciousness, whether the result of a cerebral hemorrhage, an embolism or a thrombosis, is too common with the general practitioner. To recognize this trouble and to determine its cause is important, not only to the medical profession, but also to the individual. The recognition of mental disease while on the border line is the important thing. The individual who is told that he has appendicitis or gall-bladder trouble, or some other condition demanding surgical skill of the highest character is hustled to the hospital. The individual, however, who has loaded his carrying capacity beyond a healthful resistance, whose condition is the result of concentration of thought or overattention to business, and who is in danger of losing his mind, who is made up of hesitation and doubt, whose mind dwells on himself, who tells the physician he consults that he thinks of taking his life, is in a condition that should be recognized. And until the physician is sufficiently trained to appreciate the fact that this is important, that this patient does not have the power to decide, is devoid of initiative and that the family as a rule does not want to decide for him, these mistakes in practice will continue. While, in such a case, they hesitate and conclude to leave to the patient that which he has not the power to decide for himself, they will hustle the surgical case to the hospital; but the mind of this patient is as necessary as the kidney, the gall-bladder, an arm or a leg. The thing to do is to get him to some place where he can be treated or where they know how to treat him while he is still curable. There is a disposition on the part of many in the medical profession to treat paralysis with strychnin; but in a hemorrhage of the brain inject strychnin, and what will happen? The diagnosis is the important thing. It may be said equally truly of other branches of the profession that students do not come out in four years, capable; but they ought to come out with sufficient ability and knowledge to diagnose a case.

Dr. Walter B. Swift, Boston: I have met the problem of methods of instruction in nervous diseases. When I was made instructor in neuropathology in the Tufts Medical School, I found the students brought very little from courses below which they could use in my course. And the courses below were not to blame. One trouble was this lapse of time of which Dr. Southard speaks. I can add that with charts, lectures and diagrams the students carried little to the courses above mine. I met this problem with success by the introduction of two ideas, repetition and visualization. By repetition I mean this: I repeated in my course all the essential data they should have brought up from other courses, anatomy, histology, pathology. Of four months put on the course, three were spent in review before ever mentioning the new and finer parts of neuropathology. Then one month on that subject. Visualization, however, is the secret of making neuropathology easy. Dispense with all charts, diagrams, didactic lectures preceding demonstration, and first show the tissues; get this well pictured in the mind and afterward dilate in words, but only to enhance that visual picture.

Dr. Charles R. Ball, St. Paul: Formerly mental and nervous diseases to the ordinary medical man were not very attractive. I think now, however, we all realize that conditions have changed. The neurologists have illuminated the subject so well that both surgeons and internists are beginning to look in our direction. We should regard this as distinctly complimentary. Since the excellent work which we have done on the subject of nervous syphilis, syphilographers have united with the internists and show a desire, also, to enter this field. As yet, however, the subject of psychiatry does not appear to be so much encroached on. With regard to medical education, the greatest fault that can be laid against it is the failure thus far to teach students to recognize and treat in an intelligent manner functional nervous diseases. In our method of dealing with this class of patients more reproach has undoubtedly been brought on our profession than in any other class of cases. I hope Dr. Graves' paper may give the impulse to decided reforms in the teaching of neurology and psychiatry in medical schools.

Dr. Hugh T. Patrick, Chicago: In my opinion this lack of interest in neurology and psychiatry and the feeling of inadequacy on the part of the graduate is due to the enormous amount of malpractice which has taken place in the chairs of these departments. I know of no other chairs in medical schools which have maintained as much abuse as have the chairs of nervous and mental diseases. When the subjects of neurology and psychiatry are adequately and properly presented to a medical class, the members evince as keen an interest as they do in any other subject. In present-day medical classes there is a beautiful keenness and anxiety to learn and to acquire a knowledge of the nervous system and its diseases. And I believe that any lack of attention is due to the man in the chair. Therefore the criticism that I would make against medical schools is that they have not always picked out the man who is able properly to instruct and to hold the attention of the medical students, but have selected a teacher for reasons of expediency. Or a man is sometimes given a chair not because he imparts knowledge well, but because he is eminent in his department. That is entirely the wrong basis for putting a man into the work of teaching. He may be head of the department, but he should not be given work for which he is not amply fitted.

Concerning Dr. Southard's remarks, in the school with which I am connected we have tried to carry on this continuity. In the second year the students have a course on physiology of the nervous system given by a member of the clinical staff; in the third year they have a text-book and recitation course, the aim being to give them a clear conception of nervous diseases. That prepares them for the clinical work in the fourth year. And the thing that I think is of most importance in all these things is not to try to teach too much. The teaching is inadequate, as Dr. Graves has said, but, in my opinion, it is because an effort is made to teach too much. For instance, the teacher himself is interested in some of the refinements of nervous diseases, and he, naturally, teaches what he is interested in. That is a matter of self-indulgence. A teacher must adjust himself to the man on the bench: What can the boy hold in addition to what all the other departments teach? In the next place, give him the fundamentals, the real things he must know. When a teacher of neurology gives his students twenty symptoms of tabes, he is guilty of malpractice. There are only a half dozen symptoms the boy ought to know, but those he must know absolutely; but loaded with too much, he does not know what are the essentials and what are the superfluities and refinements.

Dr. William W. Graves, St. Louis: The burden of my complaint is that because instruction in neurology and psychiatry is put off until the fourth year in many medical schools in this country, the student does not have a chance to learn that it is necessary to consider the nervous system and its reactions in the recognition of health and disease. This is, of course, a serious defect in medical education. To remedy this defect neurology and psychiatry must be given logical place in the curriculum; that is, from the beginning to the end of the clinical years and the subjects must be given adequate time, that is, one hundred and fifty hours at least during the clinical years.

PRESENT-DAY PUBLIC HEALTH ACTIVITIES *

FRANCIS E. FRONCZAK, A.M., M.D.
Health Commissioner
BUFFALO

Perhaps in no other field of scientific progress is the axiom that "the luxuries of yesterday are the necessities of to-day" more true than in that of public health.

Let us apply this to the laboratory alone and we will have the verification. What was formerly scorned as indicative of ignorance is now used as a matter of necessity.

So various have become the branches of the many activities in public health work that their mere enumeration with but slight comments would occupy the scope of this paper. I will devote brief attention only to those in the limelight.

Complaint is frequent, and sometimes justly, that there is too much paternalism, that too many persons exist at the expense of the public and that the number who slip through life from birth to death without worry as to who pays the bills is constantly increasing. Legislation and private philanthropy combine to assist. While they do not give the comforts they at least provide the necessities.

In many cities, and this is especially so in Buffalo, there is a close cooperation between the Department of Health, Police and Education, and the various private philanthropies. While formerly it was considered proper to tell your troubles to the police, it is now essential to transfer them to the Department of Health. Such messages by mail and telephone are so rapidly increasing that with us it has become a part of our regular work.

Some of the work formerly done by the police has been transferred to the Department of Health, notably that of caring for the insane. Forcible restraint has been replaced by medical care.

Permit me to enumerate some of the most important activities.

VITAL STATISTICS

For many years this country has been too busily occupied with what was considered more important matters, and for that reason many details had to be neglected. As the country grows older it learns much by experience. Many of our customs and laws are the result both of experience and evolution. Vital statistics is one of these. No great importance was attached to this subject; births and deaths were considered as part of the laws of nature. It was not even considered unusual that pedigreed animals should be registered and accurate records kept. This was a question of commerce and justified on that ground, but when it came to vital statistics, the making of a record of every child born, and a record of every human being who died, it was considered red tape. Experience gradually showed that this was not red tape, or the effervesence of some officious mind, but an actual necessity. As this feeling gradually grew on the public they began to comply, and in the greater part of this Union it is an obligation, not only recognized but made mandatory by law.

The question as to how this can best be accomplished is a debatable one, and the answer to this must also rest to a great extent on experience. It has been shown that so long as the registration of births and deaths is left discretionary, just so long they will be incomplete. Incomplete records are worse, at least for statistical purposes, than none at all. It is a public delusion. The public believe where a registration is in force that all vital statistics are recorded. Where it is discretionary perhaps the very records that are sought will not be found. Therefore, the only way to ever obtain correct records is to make registration mandatory and to provide an adequate penalty for neglect. This was the contention which we, in Buffalo, made for the past twenty-four years, and under which we succeeded in getting perfect records of deaths and almost perfect records of births. For many years other communities disputed this point with Buffalo and said that it savored too much of European autocracy.

It is a pleasure, however, and a justification of Buffalo's course to note that the model vital statistics law, which has been adopted by the state of New York and certain other states, is based on this theory as being the only one by which accurate vital statistics can ever be obtained.

ISOLATION AND CONTROL OF COMMUNICABLE DISEASES

Nothing in public health activities has made greater progress and nothing has undergone greater evolution than is shown in the question of communicable diseases. Those of you who have been in public health work for the past twenty years or more will agree with me that there is no comparison between the methods employed then and now. While even at that time epidemics were no longer looked on as the visitation of Providence, yet some of the methods in use were still remnants of the same theory. In no other line of public health work has science played a more important part. With the aid of the laboratory, we have learned the cause of most diseases, and with this knowledge came the result in methods. We no longer quarantine diphtheria for an arbitrary period, but only so long as the germ manifests itself. As in diphtheria

---

* Read before the Section on Preventive Medicine and Public Health at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

so in other communicable diseases, our knowledge has spread and gradually our methods have changed.

COMMUNICABLE DISEASE HOSPITALS

Hospitals for communicable diseases are more and more coming into general use. I do not care to discuss this subject at any great length except to express the belief that they will be a great factor in the control of the diseases mentioned.

HOSPITAL SOCIAL SERVICE

Among the great changes in hospital work, none is more important than recognition of the vicious relationship between poverty and disease. Many maladies are dependent on the attributes of poverty, insufficient food, want, bad housing, etc. Remedying the disease and returning the individual to the same condition is a labor lost, and thé method of following cases to their environment and bettering conditions there is a movement in a direction that is corrective in a true sense of the word, and will be productive of results in the highest sense of the word.

TUBERCULOSIS

It is a sad commentary on the many and great activities both by public health authorities and by many private philanthropists throughout this country, that in spite of their varied activities hardly any impression is made on pulmonary tuberculosis. This statement may be disputed by some. With the amount of energy concentrated in this one direction it would seem that a corresponding amount of results ought to be accomplished. During the past few years many societies have organized to assist their respective localities in exterminating this disease. Public sentiment has been worked up to a degree never before witnessed. With the cooperation of the public, everything that the human mind and medical science can advise is being done. Consumption has been made a reportable disease. Its victims are looked after, instructed, provided for, isolated, segregated, and the public in general has been carefully instructed as to all the questions involved. Hospitals and sanatoriums have sprung up almost like magic in city and country for the exclusive treatment of this disease.

And yet in spite of all this we stand aghast and note with consternation the fact that consumption claims as many, and sometimes it seems even more, victims than it did before.

Here is a subject for reflection. Here is food for thought. I will not attempt to enter into a discussion as to the reason why. I leave it for you. For you, who represent every section of this great country, to take this thought home with you to look over the situation as it pertains to your own locality to compare with that of others and if possible to offer a solution. I can state, however, that I can almost see that the next generation will surely reap the benefits of this constant warfare on the white plague. So let us keep at it unflinchingly.

CLEAN-UP WEEK

The yearly municipal clean-up week, a distinctive American innovation, is an activity that has come to stay.

In addition to its material benefits, its educational feature is not to be overlooked. For weeks, the press, with its characteristic liberality, heralds its approach, and sings a daily song of cleanliness and health that is not lost; the scholar brings home a lesson to the household with the moral weight of its source, and the Boy Scout, now an active and important participant, receives an education in civic duty that cannot but influence the man of to-morrow.

The experience of Buffalo is that the clean-up week is yearly growing more popular, and its beneficent results in proportion.

SWAT THE FLY

Stimulated by results obtained in making the Panama Canal region safe, the world awoke to the possibilities of exterminating the mosquito and fly. The results have been marvelous. The slogan "swat the fly" superseded that of "the fly that does not wipe its feet" — the former is shorter, but the latter more expressive. "The Fly That Does Not Wipe Its Feet" was the heading of an article printed in the *Bulletin* published by the Buffalo Department of Health in 1908. It was copied extensively from the Atlantic to the Pacific and in some European countries. There is no doubt as to its effect. The many fly campaigns waged everywhere are sufficient evidence. Permit me simply to emphasize one thought. I would suggest the selection of "catch the fly" to replace all others. In our experience the question of fly extermination depends chiefly on catching the flies and the best way of so doing is by fly traps set at places where flies mostly abound whether it be in the house, the barn, the manure heap, or the garbage pail. It is useless to swat the individual fly and let the million escape. It is also useless to inaugurate fly campaigns for the purpose of rewarding those who produce the greatest number of dead flies. There are many unscrupulous enough to create fly hatcheries for this special purpose in order to receive the remuneration.

Therefore "catch the fly," and catch him with a fly trap.

Aside from this, "prevention" has become the great goal of all public health activities. The old axiom about an ounce of prevention had a beautiful sound, but seldom with a tangible response. This has been replaced by the popular cry of "safety first," and by common consent public health authorities have been shouldered with the responsibility of general prevention. This summarizes the entire question of isolation and control of communicable diseases. It is not a question of education or publicity so much as a question of authority to act.

VENEREAL DISEASES

The treatment of venereal diseases has too long been left in the hands of charlatans and leeches who suck out the gold while they frighten their victims into a silence. Their victims are numbered by the thousands. Why this disease, which always has and always will exist, should be left in the hands of quacks and unscrupulous persons, rather than treated by reputable physicians or assisted by municipal authorities, is explainable only through the delicacy felt by the unfortunate victims. At one time patients suffering from cancer or tuberculosis considered the same privacy as essential, and in some places this condition is still met, but it is gradually fading. We can readily understand why a man or a woman, who either innocently or otherwise, has acquired a venereal disease, should shrink from permitting that fact to become public property. For the same reason they do not always consult their family physician whose counsel and help would be inestimable. In order to preserve their secret they usually consult advertising quacks and learn, when too late, that they have done the very thing they sought to avoid. The quack who can thrive only by fraud, deceit, and everything that is unscrupulous, throws out such alluring baits, both as to his guarantees to cure and his work without pay, that the victim allows him to proceed. It is soon found that these guarantees and promises must be met by the patient with the required amount of cash and the patient finds that this is but the beginning of a continuous blackmail. Is it any wonder that we have hereditary syphilis, that our asylums are becoming more and more crowded, and that our suicides increase?

In many parts of the country, health departments or private philanthropies, or both, have started reactionary measures, such as making venereal diseases reportable like other communicable diseases, making free examinations for gonorrhea and syphilis, providing hospital care for those in need, and what will perhaps be the most efficient of all, the inauguration of a system by which the influence of the venereal quack is minimized. This is done by a systematic meeting of the quack's methods. Public water closets, which are plastered with venereal advertisements, are decorated with warning cards. Public advertisements in the press are offset by other advertisements issued for the purpose of calling attention to the impossibilities of fraudulent advertisements, the impossibility of curing as guaranteed, and the impossibility of any person existing and continuing to do business under heavy expense without proper remuneration, and, therefore, the impossibility of treatment without pay, and finally advising such unfortunates what to do. All these methods are valuable. Each has its advocate, and each must leave an impression.

From many years of observation I maintain that nothing will be accomplished until authority is vested where it belongs, namely, in public health departments. My first plan would be to make it impossible for any person to practice a medical fraud. It would seem that there is already sufficient law covering this point, but it is difficult to enforce. The influence of the quacks, through the millions which they spend in advertising is so great as to render it extremely difficult to put them out of business. In Buffalo we have succeeded in abolishing a few of the worst ones by merely obtaining a fraud order from the Postoffice Department by which it was impossible for the quack to receive mail, and which also made it impossible for the papers containing his advertisement to be mailed. Under this procedure alone it seems to me that the entire army of quacks could be wiped off the map. No community will tolerate another person who advertises deceit and fraud, and why the medical quack should be given preference is difficult for the ordinary person to comprehend. Not only this, but it is an insult to the common decency of every community.

MEDICAL SCHOOL INSPECTION

Although this is one of the newer methods employed in various cities, yet its popularity has been so immediate that every town or city of any pretention whatever has some form of medical school inspection, especially in the state of New York, where it has been made compulsory by state law. The Fourth International Congress on School Hygiene, held in Buffalo in 1913, and whose proceedings have just been issued from the press, has greatly advanced this public health activity. It is therefore unnecessary to enter into this subject at length, but merely to say not only that much has been accomplished, but also that it is difficult to see how we were able to get along without it. Medical school examiners, school nurses, dental inspectors, dental dispensaries, eye, ear and throat infirmaries, are now all looked on as necessary adjuncts of school life. The question has been raised as to whether medical school inspection properly belongs to the health or school authorities. In Buffalo we have formed a combination of the two and consider this the best solution.

Open air schools have likewise swept the country, but as far as I know Buffalo again has the distinction of having the first school in which tuberculous children are treated, and at the same time educated. If there be any class of children whose minds should be cultivated while their bodies are treated, it is the tuberculous. Physically handicapped, it will be necessary for them in adult life to depend more on their mental abilities, and for this reason, if for none other, their mental requirements should be attended to at the same time that their bodies are made well.

THE SUBNORMAL CHILD

The segregation of mental defectives, better called the subnormal children, is another great question worthy of more attention than has thus far been given to it. As a rule when these unfortunates become too old to attend special classes they are turned loose into the world to become criminals. Suitable provision should be made whereby they can be restrained and cared for until they become self-sustaining.

Does medical school inspection and school nursing deprive the regular practitioner of his legitimate work? At first glance it would seem so, but in Buffalo the opposite holds true. In the course of a year's inspection thousands of pupils are discovered with various physical conditions or diseases requiring treatment. These are all sent to the family physicians, instead of being cared for by the medical school inspectors. Most of them would have escaped for years, perhaps forever, to their own detriment, and to the loss of others; and instead of remaining a community liability became valuable community assets.

CLOSING SCHOOLS IN EPIDEMICS

With our present knowledge of treating communicable diseases it seems strange that many physicians of experience should still hold to the obsolete theories of checking an epidemic by closing the schools. In my mind there is not a single justification for such an act. We have many schools in our city containing from one thousand to three thousand pupils each. Take one of the latter for instance: If we had one hundred cases of any one infectious disease in it, why should 2,900 pupils, who are not ill, be deprived of their privilege? As an illustration let me tell you of an epidemic of diphtheria which occurred in one of our largest schools last fall. Case after case was reported within a comparatively short time, and the medical school inspectors were instructed to locate the source. Every child showing any symptoms of coryza or any clinical evidence of diphtheria was culturized, and, if the culture was positive, excluded. Still new cases cropped up daily, and as a result every person in the school, from the principal to the janitor, was culturized. In that way a number of diphtheria carriers were found and excluded. This broke up the epidemic at once. Had the school been closed the carriers would have remained at large undetected and would have continued to spread their disease. What holds good in diphtheria is also applicable to other diseases.

FREE PUBLIC BATHS

Buffalo has the distinction, as well as the honor, of being the first city in the world to establish and maintain absolutely free public baths. Several so-called "free baths" existed prior to ours, but inasmuch as they charged a penny for soap and towel, they could not be considered free, even if the charges were only nominal. We have two such baths situated in different parts of the city, in buildings erected especially for this purpose, with separate quarters for males and females, and each bathing establishment also containing a laundry where the bathers may wash their garments, place them in a steam dryer, and find them ready for wear by the time they are through with their bath. That these free baths and laundries are appreciated is shown by the fact that over 300,000 men, women and children make use of the baths annually, and over 10,000 make use of the laundries.

The city of Buffalo considers this a splendid investment. Only shower baths are used, there being no plunge. By standing under a shower there is no possible chance for personal contamination, and each bather is given a piece of soap and a clean towel on entering, which they are again required to deposit on leaving. Prior to that time we had free bathing on the beaches of the lake and river, which was limited to the short period of summer. For those who could afford it we had public bathing establishments and private clubs. Within recent years, however, a number of our public schools have had swimming pools and bathing facilities added, which are likewise free; but in spite of all this the popularity of our free public baths continues.

EDUCATION IN PUBLIC HEALTH

This subject ought to be added to the curriculum of every medical college. Workers in public health appreciate this. Many a student receives his degree of Doctor of Medicine who cannot even make out an acceptable birth or death certificate. The Buffalo Department of Health has offered the medical department of the University of Buffalo all the facilities at its command, whereby the students are given opportunity to study the methods of our department in all its phases, from the conduct of the general office to the inspection of schools, tenements, etc. Every medical student is now obliged to take this course, which is bound to bring most excellent results, and be of great value especially to those who in the future will become health officers in the various localities where they may practice after graduation.

LABORATORIES

Preventive medicine, serum therapy and laboratory findings are rapidly displacing the healing art and is giving way to the preventive art, and individuals are treated as much as their ailments.

In this connection no factor plays so important a part as the laboratory, and no practitioner can do justice to the responsibilities in the absence of its aid and resources.

All organized departments maintain a bacterial and chemical laboratory in the interests of the public health and available to the profession where located.

So important are its functions that they are made available to nearby communities who are not able to maintain so expensive an equipment.

In addition to its use in medicine, such equipment, especially the chemical division, is made use of largely in commercial lines. Much money may be saved by subjecting materials to analysis to determine their character, fitness and compliance with specifications; cement, rubber, paint, oil, coal, gas and various other commodities can be subjected to tests under such circumstances. The school, public works, and fire and water departments avail themselves of the facilities and the methods adopted by our large industries can be utilized to the best advantage.

ANTITYPHOID VACCINATION

One cannot refer to bacterial work in relation to public health without having in mind the use of the typhoid bacterin administration, its high value and efficiency; this is before the country at this time.

At present our army is and has been assembled for months under the same conditions that obtained during the Spanish-American War, when there were about twenty thousand cases of typhoid and about fifteen hundred deaths. On the frontier and in Mexico since the troops have been gathered, there have been practically none (one or two, I believe, at the utmost) all due to enforcement of the antityphoid vaccination order.

It is accepted that typhoid is contracted in many other ways than by water, through contamination of farm products, milk, etc., and inasmuch as control over this etiologic factor is not as yet as it may be, it appears indicated without question that its administration should be urged, much as with vaccination in small-pox. Buffalo's health department for the past two years has been administering free antityphoid bacterin to all applicants, especially urging it to the physicians, nurses, commercial travelers and all those who spend their vacations in the country, or where the water supply is not beyond suspicion.

SANITARY CONTROL OF FACTORIES AND INDUSTRIES

Many factories and industrial establishments are conducted more or less in an avoidable insanitary manner.

Among causes determining this are the absence of ordinances with specific requirements, indifference of owners in allowing sufficient time for the purpose of cleaning, poor adaptation of buildings, indifference to consequences, and the custom of adapting ordinances to conditions instead of conditions to comply with ordinances.

Many advances, however, have been made, ingenious devices and appliances offset unhealthy occupations, poorly ventilated and lighted factories are growing less, dressing room and other facilities are being supplied, while many of the large representative places are ideal in their equipment.

The operations of the new New York State labor law are bringing about advantageous changes in all these matters.

Conditions in the retail food industry, however, are a fertile field for activity, particularly in the closely congested sections with recent arrivals to this country, and in the case of small places. Fly and dust protection and improper association for foods is most difficult to secure, by reason of ignorance, and the want of appreciation of the significance, especially as the enemy (germs) is an invisible foe and the distinctions in cleanliness do not appeal.

MILK

While the protection of foodstuffs is one of the foremost works of the day, the activities in milk work are distinctive.

Its importance as a food, its peculiar characteristics and susceptibility to contamination, its intimate association with infant mortality and with tuberculosis, render the duties of conserving it one of great importance and responsibility. It justly occupies a foremost place in the activities of all highly equipped departments. Its consideration here must of necessity be brief, and will be limited to a reference to Buffalo's activities the past few years, and some thoughts in connection therewith.

Six years ago Buffalo was supplied by about two thousand uninspected dairy farms in all sorts of conditions; it was brought to the city under unprotected transportation, distributed by about three hundred dealers, and for reasons beyond control at the time was without systematic inspection, and much of the milk was characterized by a bacterial count in the millions with colon, and much of it unfit.

The work by my direction was placed under the supervision of W. H. Heath, a former officer of the Public Health Service, and now chief of the Bureau of Food and Drugs, with instructions to systematize it with safeguarding requirements and get results.

The changes were radical. The inspecting corps was increased, a dairy farm inspection service established, a standard for production and for admission adopted, which included a bacterial limit of five hundred thousand and no colon, and ordinances were enforced.

As a consequence of rigid enforcement and administration the findings to-day are that it is produced by but fourteen hundred dairy farms (600 being discontinued) under routine inspection, distributed by but 250 dealers under routine inspection and living up to ordinance requirements.

The milk is examined as it comes from the producer and compared with findings as delivered to the consumer, and discrepancies as to character and contamination are acted on in accordance. As high as 95 per cent. comes in under requirements for admission. Poor milk is the rare exception. Fewer activities are characterized by a more satisfactory evolution from the detrimental to the desirable.

Within but a few years milk inspection was from a commercial point of view, and the influencing factor with the public was the cream line. All milk looked alike, and the important matter of its contamination and possibilities were unknown and unconsidered. Through department activity and dissemination of knowledge through the press, settlement workers and other factors, a different attitude is in evidence, and there has been a general awakening on the part of the householder in regard to milk notwithstanding which, however, there is not, as yet, that sympathetic interest which should obtain.

It has been said that a community can obtain as safe a milk as there is demand for and money to pay with, but this can come only through enlightenment, and an appreciation of the conditions. To that end, therefore, as public health is largely a purchasable commodity, a department should advertise, make use of the daily press and talk to the entire community. Provision should be made for space and at stated intervals pertinent information on health matters and guiding information on foodstuffs and the industries should be made public. Advantage should also be taken of other methods of getting to the public, and street-car advertising, by methods that appeal to the eye, are suggested.

THE MILK BOTTLE AN EDUCATOR

It has also occurred that the milk bottle could be made use of; that it could have a mission and carry a message in its daily entrance to the household. It could carry a label or tag furnished the distributor by the department, with brief epigrammatic information how to care for milk, what to do when the baby is sick, the danger from flies and the like. In other words, make the milk bottle an educator as well as a carrier. The message day by day could not but awaken interest and make an impression.

The value of inspection is largely educational, and to that end, an inspector must have the knowledge and be able to convey it to others. A department should conduct, to my mind, a system of instruction for its inspectors, that they can cover this phase of the situation with efficiency. Such action is now in vogue at the present time in the department over which I am in charge.

LICENSING AND EXAMINATION OF MILK DEALERS

In this connection other thoughts have occurred to me. No industry has greater potentialities for detrimental consequences than the milk industry. The careless or ignorant druggist may poison one or two; the plumber through defective work cause sickness of the family; the butcher prostrate a single household through bad meat, but the ignorant or careless milk dealer may, before he can stop, carry infection and sickness to every home on his route.

If the law demands plumbers to be licensed, a drug clerk and even a barber to be licensed and to determine fitness in protection of the public interests, is it not much more important to license a milk dealer?

It is believed that no man should be eligible for a permit to engage in the milk business unless he holds a license to be a milk dealer and engage in such business. A certifying board similar to the board that certifies to the fitness of plumbers should pass on the fitness of those who desire to handle this important commodity. Applicants should at least have a rudimentary knowledge of the relation of milk to sickness, of its possibilities in its relation to the public health, elementary knowledge of what is meant by contagion, the A B C of sanitation, the reasons for cleanliness.

This will eliminate the ignorant and often stupid individual who, at the present time, with the command of a few hundred dollars, may engage in peddling a few cans of milk, and who may be more or less of a constant menace. Such certifying board might be composed of a representative milk dealer, a member of the health department and an outside business man, and could be appointed by the county judge.

PASTEURIZATION OF MILK

When it is considered that a proportion of the milk herds are tuberculous, and that the disease is transmissible, especially in the case of children, a problem is presented that is as cogent as important. As elimination of the infected cow is not feasible from an economic standpoint, and as pasteurization is practicable and efficient, the question of pasteurization of the city's milk is one of the indications of to-day, and should be adopted by every community.

In view of all the circumstances attendant on such procedure, an important proposition is as to whether a city of moderate size should not maintain a pasteurizing plant in the interests of the public welfare.

The subject is beyond the scope of this paper, but for some time it has been in my mind that the principal contaminating utensil, the milk can, should be sterilized under municipal control, and such action is under contemplation.

If there were a municipal sterilizing and pasteurizing plant available to the industry, it would go far toward eliminating some of the most serious of the detrimental possibilities.

It is my intention at an early day to bring this matter before your attention, as I believe it would justify your consideration.

REGULAR SOURCE OF PUBLICITY

Nothing adds more to the value of public service than publicity. It can seldom be overdone. The public has a right to know not only what the law requires, but also what the health department does. I have often noted the serious results obtained through concealment. The public has a right to know that an epidemic exists just the same as it has a right to be proud of the fact that the community is free from disease. In my department I have employed three principal methods—a regular monthly bulletin published by the department containing twelve pages and having a circulation of ten thousand with each issue. I have found this bulletin sufficiently large to give in a condensed form the activities of the various bureaus of the department, as well as giving much information pertaining to public health which I know the public appreciates. These bulletins are issued free and mailed to the physicians, dentists, undertakers, midwives, clergymen, school principals and teachers residing in the city of Buffalo, and to other residents who apply for it.

All information contained in a department publication should be authentic, should be up-to-date, and should be edited by some person familiar with public health work, having the confidence of the medical profession and considered authority on such matters. In this way only can the confidence of the public be reached and maintained.

The other method which I have adopted and found to be of great value is to disseminate information through the daily press. In a large city so much occurs continuously that it would be impossible to wait for the issue of its monthly bulletin, much less to crowd in all that should go. The daily press therefore becomes a necessary adjunct. Like other news the health department information thus reaches the public while it is yet news, and is therefore of greater value. The influence of the daily press is also a matter of common knowledge, and this influence is a necessary adjunct for any public health department.

The third method is the distribution of small hand circulars of the most concise nature. These are printed in the several languages most commonly used in the municipality.

I am not much of a believer in voluminous medical articles in weekly or monthly magazines. These contributors often write against space, at so much per line, with a corresponding loss of the value of their production.

INFANT MORTALITY

Not so many years ago infant mortality and "the survival of the fittest" were always associated in the minds of the public. Parents took it for granted that a certain number of children were born to die in infancy. As civilization advanced, the number of births gradually reduced, but the number of deaths was not reduced in the same ratio. Then it was that the question of infant mortality received such consideration that every feature entering into the cause was carefully investigated. It was found that this was not an ordinary result of natural conditions but a simple question of cause and effect. Efforts were then started toward preventing the cause, and the effect is becoming apparent everywhere. The percentage of deaths in every well-organized community is annually growing smaller. Wherever this is not the case it indicates carelessness or inactivity. Most of you can recall the time when long tube nursing bottles were common in every household when milk was permitted to remain at the most convenient place; when flies were if not a welcome at least a necessary adjunct; when garbage and filth were thrown out of the nearest store or window and permitted to accumulate; when no attention was paid to food and drink; when nobody ever thought of investigating dairies or examining cows; when milk was milk and that was all there was to it.

I might continue to multiply this list, but my only object is to show what was and to call your attention to its elimination. We may summarize it all by "cause and effect."

While education played an important part in these results, I am afraid that it gets more credit than it deserves. When you ask this question, I am sure your answer will be the same for your locality as it was for mine—that while education and publicity play important parts, the chief credit is due to adequate laws by which the health departments are enabled to back up their demands in an efficient manner. People are the same the world over. As much as they may agree to the justness of your request the majority will never comply unless your request becomes a demand and that demand can be properly enforced by law.

This is what has made the great impression on infant mortality and has reduced it from what, years ago, was a blot on the country and a criminal insult to our intelligence to a state which, while yet far from ideal, can at least be called satisfactory.

FUTURE ACTIVITIES

Now that the reduction of infant mortality has been properly looked after, let us devote some attention toward the reduction of adult mortality. Far too many die during the best years of their lives from organic diseases. Their activities are cut short at a time when their services, or at least their experience, is worth the most. However, this subject is so great and so important that to enter into it properly would again carry me beyond my time allowance. Let me only say that I consider this one of the greatest of future activities in public health work. I believe that we ought to reduce the various organic troubles of adult life as we have reduced the causes of infant mortality.

In thanking you for your attention, I beg your indulgence. The responsibilities of a department with widening sphere of action, the many claims on time incident thereto, have necessitated the hurried preparation of these remarks, at a time usually devoted to sleep and rest. If, however, they will awaken some interest and elicit discussion, their purpose will be more than fulfilled.

Municipal Building.

ABSTRACT OF DISCUSSION

Dr. W. A. Evans, Chicago: I know of no separate statistics in this country that are in greater need of standardization than the baby death-rate. It is so easy to show the cause of death of babies under 1 year of age, that some years ago I accepted the conclusion that, in considering the infant death-rate we must totally disregard the cause of death as given on the death certificate—it was so thoroughly undependable. The question then arises how we shall estimate the death-rate of babies living less than a year. In view of the faulty birth registration in most of our communities, probably the most accurate method is to estimate the death-rate on the basis of population under 1 year of age. It would be difficult for me to conceive so rapid a drop in death-rate; and I must believe that a good part of it is due to the fact that the attention drawn to it served to change in the direction of greater accuracy the cause of death as it appeared on the death certificate. When I went into the department of health in the city of Chicago, one of the things needing serious attention was what should be done about the baby death-rate. Men who were engaged in caring for babies told me that, in their judgment, the evidence from a clinical point of view did not indicate that infantile diarrhea was to be handled as a bacterial disease. We know that, from the point of view of bacteriology, proving a bacterial cause for infantile diarrheas has met with indifferent success. As the result of our investigation the situation developed to include milk (which came under the auspices of the health department), and nursing (which is, in the main, extragovernmental). Our death-rate has not improved, though the milk-supply has.

Dr. J. W. Trask, Washington, D. C.: What Dr. Evans says with regard to the method of calculating mortality rates is all too true, especially for this country. Improved registration of births will give an apparently decreasing or falling infant mortality; and that applies to the whole country.

Dr. W. S. Rankin, Raleigh, N. C.: Dr. Evans has suggested that the fall from 134 to 92 deaths from diarrheal diseases of infants per hundred thousand population is due to greater accuracy of the physicians in making out the death certificates. The evidence bearing on this suggestion will be found in the relation of the drop in the special death-rate to changes in the general death-rate. If there is a similar decline in the general death-rate, the evidence is against Dr. Evan's suggested explanation; if, on the other hand, there has been a decline in the special death-rate without any similar decline in the general death-rate the evidence favors Dr. Evans' suggestion.

Dr. C. Am Ende, New York: I have been for several years in charge of the children's clinic and I have found that, usually, in the summer time the cases of diarrhea that come to me are largely affected by the incomplete sterilization of condensed milk; and when I explain to the mothers that they must boil the condensed milk, together with the water they use in its dilution the diarrheas stop promptly.

Dr. C. Hampson Jones, Baltimore: If we can get away from the idea of having any special day or special week for city cleaning, it will be better. In Baltimore we have been trying to do this for some time; and I think we are approaching success. A large number of the police force are in the day service, and constitute a moral rather than an active force in the control of violations of law. We have obtained the cooperation of the police commissioners in having the day policemen perform sanitary work in the direction of constant inspection of the yards, cellars and alleyways of properties on their respective beats, with power to enter whenever they choose to instruct the people what to do; and, if those instructions are not carried out, to invoke the law and to arrest. I don't know how successful it is going to prove; we believe that it will be excellent; and, finally, it will do away with the piling up of filth until the cleaning-up day.

Dr. Charles J. Hastings, Toronto, Ontario: I have always taken decided exception to this "clean-up day" or "clean-up week"; my idea is to make the clean-up process a continuous one. It is not possible to depend on the complaint system; because in the parts of the city that it was most needed the inhabitants were practically all in the same ship, and therefore were not going to complain of each other. Complaints usually come from the better districts of the city. Therefore, I had the city divided into (twenty, at present) sanitary districts, and one man held responsible for each district, and he patrols it regularly. In addition to that, we have the cooperation of the police officers of the city, who are required to make a note of any insanitary conditions they see, and are furnished with blanks on which they report to the department of health. While, as Dr. Fronczak says, there is an educative value in drawing the attention of the public generally as in a general spring house-cleaning, yet I feel that if we want to get our cities cleaned up and keep them clean, we must divide them into sanitary districts and have competent men in control over those districts.

Dr. Davis Furman, Greenville, S. C.: I live in a small town and have been connected with the health board there for some time. Quite recently we provided for a clean-up week. We have a pretty good corps of officers, whose duty it is to look around town and see that everything is clean; but the clean-up week brought to the surface tons and tons of hidden garbage; and it was evident that whitewash, soaps, varnish and disinfectants were freely used, even by the negroes. We made it a little more interesting by offering some premiums for the cleanest ward.

Dr. Francis E. Fronczak, Buffalo: The idea of having a clean-up week is not to have the city clean that particular week only. The purpose is to arouse in the ignorant and those who are, as a rule, slovenly and uncleanly, ambition to fall in line and do, during the clean-up, what others are doing the entire year. Clean-up week not only is a forcible reminder to the people that they should keep clean their houses and homes, but gives the idea of adorning their surroundings; and, of course, there is a friendly, neighborly competition in this regard. One neighbor after clean-up week will have a fine lawn prepared; soon you will see others doing the same. This is our experience in the last few years. For the clean-up week we interest the population for about a month; we get the police department, the fire department, the boy scouts, the women's organizations, the housekeepers' leagues, the business men, the chamber of commerce and others to cooperate. The chamber of commerce officials told me that during the last clean-up week they found a great number of fire risks in the factories and stores that would never have been found had it not been for clean-up week. This is the result of negligence on the part of the employees. Store employees throw everything in the cellars and forget to remove it; factories sweep the dirt in a corner and leave it. This clean-up idea starts the employees to clean up, and they do it completely. The city is divided into sanitary districts, and these are kept clean all the year round so far as can be seen by an ordinary examination, but in the clean-up week we preach the necessity for cleaning up the nooks, corners, attics, barns, etc. I believe that at some future time there will be no necessity for clean-up weeks, because everything will be as clean as it ought to be, because of these educational campaigns.

The Importance of Discoveries in the Field of Infectious Diseases.—The discoveries which have transformed the face of modern medicine have been in the field of infectious diseases, and in no other department of medicine could new knowledge have meant so much to mankind, for the infectious diseases have a significance to the race possessed by no other class of disease, and problems relating to their restraint are scarcely less social and economic than medical.—Welch.

DISEASE AND POVERTY *

J. N. HURTY, M.D.
INDIANAPOLIS

It seems fair to assume that the normal person will not sink into poverty. It also seems fair to assume that illness, disease, deformity and weak-mindedness are subnormal. David Starr Jordan says: "Strong men seek education and make opportunity," and to this might be appropriately added, "They bring things about; they make events occur." Weak men are the opposite of this, and by weak I mean not strong in body or in mind. It is by their works ye shall know them. Disease is itself not an evidence of physical or mental strength. Syphilis is a great cause of poverty, as it is also of insanity. "We were getting along splendidly" said the poverty-stricken woman, "until my husband took consumption." And who must be told of the great poverty that trails consumption? A farmer died of typhoid fever when the mortgage, given in part payment for his farm, was only one-half paid off. His wife and little daughter took the disease and survived only finally to fill fuller the slums of a city where she went with the child when the rich man foreclosed the mortgage. Yellow fever prevented the French from building the Panama canal, and thousands who had invested their all in canal shares were pauperized.

In Mexico there are thousands who have been made blind and pauperized by small-pox, and a writer says there are at least two million blind beggars in China, all made blind by small-pox. It is only when epidemics come, when the greater proportion of lives are threatened, that we realize the meaning of sickness and disease. The ramifications of disease are so complex and far reaching we can have but a hazy idea of what disease means.

And what is disease? Whence comes it? Infectious diseases come to us from previous cases. Syphilis, out of which inefficiency, crime, insanity and pauperism flow in increasing streams, is a disease which is acquired through sin.

A virtuous and a righteous race would not have syphilis and gonorrhea.

It is curious to note that, because of our stupidity, one's very industry may bring poverty. This is illustrated by the occupational diseases. Until very recently society permitted greed to force phossy jaw on workmen who afterward in many instances became paupers. To rear and protect industries, one product of which is poverty, is a queer condition. The prevention of phossy jaw will certainly also prevent all the poverty which might come from it.

Hernia has more than once brought an industrious citizen to poverty.

Cigar-makers, printers and tailors, are especially afflicted with tuberculosis; and on the pauper records appear the names of hundreds who have followed these occupations. A proprietor who does not surround his employees with the best conditions of health is a breeder of disease, poverty and crime.

Feeble-mindedness is a disease condition and produces a world of poverty. One from a thousand stories illustrate this. A feeble-minded girl, born of self-supporting parents, who, nevertheless, carried the taint of feeble-mindedness in their blood, was admitted to the Indiana School for the Feeble-Minded. She was there taught how to cook and to wait on the table, and to a casual observer seemed well fitted for self-support. Fertile as a rabbit, she was turned loose in the world. She mated with a male carrying her taint. In all, eight feeble-minded children appeared and the entire family of ten sunk deep into poverty. There is no cure for feeble-mindedness; it may only be prevented; and there are only two rational methods for its prevention, neither of which society will adopt. And so it happens, as we "blunder on through love and hunger," that the highest services of medical science are rejected, prevention is disregarded and disease follows civilization with its ever lengthening train of degeneracy, defectiveness, delinquency and dependency.

---

* Read before the Section on Preventive Medicine and Public Health at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

TUBERCULOSIS AS A CAUSE AND RESULT OF POVERTY *

S. ADOLPHUS KNOPF, M.D.
Professor of Medicine, Department of Phthisiotherapy, New York Post-Graduate Medical School and Hospital
NEW YORK

It is needless to state before physicians that direct bacillary transmission of tuberculosis is possible. Tubercle bacilli have been found in the placenta of the tuberculous mother and in the new-born babe; but when we deal with the social aspect of tuberculosis we can consider the occurrence a negligible factor because of the relative rarity of direct tuberculous heredity.

Tuberculosis in childhood we have learned to ascribe mainly to a postnatal infection from a tuberculous parent, particularly the mother, and in a small percentage (about 10 per cent.) of the cases among artificially fed babies, to bovine tuberculosis. The predisposition to tuberculosis, which is surely and often inherited, comes from what may be called a physiologic poverty. A child of a tuberculous father or a tuberculous mother brings with it as a heritage a general weakness, its entire physical make-up having the imprint of diminished resistance. In other words, it is poor in its physiologic make-up and has no natural immunity to an invasion of disease. It is particularly prone to tuberculosis and when placed in a tuberculous environment contracts this disease very easily.

It is, however, by no means necessary that both or either parent should be tuberculous in order to produce this physiologic poverty. A badly nourished mother or father, living and working under insanitary conditions, overworked and underfed, will as surely transmit a physiologic poverty to their offspring as any tuberculous parent. Numerous and rapidly repeated pregnancies, particularly in the working woman who must often labor until a few days before and resume her work a week after confinement, are also sure to produce children physiologically poor and ill adapted to resist the ever-present tubercle bacillus.

There are other diseases, such as venereal diseases, alcoholism, etc., which, when present in the parents at the time of conception, will leave the imprint on the offspring. This imprint means great susceptibility to all kinds of diseases and particularly to tuberculosis. A general debility of either one or both parents, especially when it is added to an insufficient income to support the family so that there is want of food, clothing, or proper housing, is sure to result in the physiologic poverty of the children.

---

* Read before the Section on Preventive Medicine and Public Health at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

In large families of the poor it is usually the later-born child or children (fifth, sixth, seventh, eighth, etc.), who contract tuberculosis. This is primarily due to a purely physiologic condition in either father or mother, or in both. The parents are older and less vigorous, the mother particularly is worn out by the frequent pregnancies. Very often as a result of her own debilitated condition the mother cannot nurse the child, and artificial feeding, which is always worse for the child's natural growth than the healthy mother's milk, must be resorted to.

The second reason why the later-born children contract tuberculosis more frequently than the first-born is purely an economic one. So long as the family is small the father earns enough for all and the mother can devote her time to the care of the children. With the increase of the family there is very rarely a corresponding increase in the earnings of the father. The mother often has to help in the support and even then there is less abundance and less good food for the many mouths to be fed, less care can be bestowed on the later-born children, and all have to be contented with more crowded and poorer living quarters. In taking the history I always make it a point to inquire of the patient whether he was the first, second, third, fourth, fifth, etc., born in the family, and the statistics I have gathered in this way show that the later born in large families contract tuberculosis more frequently than the first-born.

Child labor, the curse of our nation, still prevalent in some of our states, impairs the physique and is in many instances the cause of tuberculosis in our young people. When the earnings of the parents are small the children will be forced into this sort of work so long as it is not absolutely prohibited by law, and when, because of tuberculosis in a family, children at the age of 8, 10, or 12 years must help in the support, working at home or in factory, they are almost certain to become victims of the disease.

We know that the housing problem is most closely allied to the tuberculosis problem. There is enough statistical evidence to show that tuberculosis is preeminently a disease of congestion. This evidence is to be found in the "lung blocks" of our large cities and the congested cheap lodging-houses, in labor camps, prisons, reformatories and schools.[1] The carefully collected statistics of the great city of Berlin show that 42 per cent. of all the cases of tuberculosis occur in families occupying but one room, 40 per cent. where they occupy two rooms, 12 per cent. where they have three rooms, and 6 per cent. where they have four or more rooms.

Maurice Fishberg[2] of New York investigated the housing condition of 217 families living in New York, the greatest and wealthiest city of our continent.

> These families consisted of 1,369 persons of whom 1,129 lived at "home" in 717 rooms and slept in 658 beds. That is about two to a bed and 1.57 people to a room including kitchens. Of the 274 tuberculous persons only 112 had separate rooms and only 136 had separate beds. Some consumptive mothers slept on chairs or on the kitchen floor.

Fishberg very justly says that this state of affairs is usual in all industrial centers of the United States. Is it any wonder that we come to look on every child born in such environments as a candidate for tuberculosis?

Not only in the homes of the poor but also among the homeless, who must be still poorer, bad housing conditions are responsible for much tuberculosis and its concomitant misery. The Health Department's statistics of New York show that the lodging-houses with an accommodation of only 17,500 people furnish in tuberculosis hospitals and clinics combined, 1,504 cases, or 8.8 per cent., of the total number reported in Manhattan, although the lodging-house population is only 0.75 per cent. of the total population. Mr. Charles B. Barnes in the *Journal of the Outdoor Life* for April, 1914,[3] shows that the lodging-house population is eleven times more subject to tuberculosis than the average population. In connection with this, I cannot help quoting from Mr. Barnes the following impressive words: "It is easy to see why so many men with tuberculosis gravitate to the cheap lodging-house. When the friendless or near-friendless man gets so weakened by his disease that he can earn little or no money, he is perforce compelled to go to a cheap place."

All cheap lodging-houses in small or large cities are evidence of poverty, misery and degradation. Those who have ever visited this class of habitation, in reality usually unfit to be inhabited by any human being, will realize that cheap lodging-houses are veritable breeding-places of tuberculosis. Many lack light, all of them lack air and proper ventilation, and not one of them is either sanitarily constructed or conducted. The tuberculous visitor to these lodging-houses will leave the traces of his tuberculosis in the form of dried sputum on the floor, wall, or blanket. The underfed, badly clad, non-tuberculous lodger, who will next occupy this cubicle, the enclosure supposed to represent a room, is almost certain to contract the disease.

The percentage of tuberculosis in our prisons and reformatories[4] is six times as high as among the population outside the prisons, which means that 6 out of every 100 prisoners, besides being condemned to serve a certain time in prison, are at the same time condemned to contract tuberculosis. And this we allow to continue in spite of our modern conception of phthisiotherapy and penology.

Congestion is of course equally detrimental in workshops, sweatshops, factories, offices and stores, and the only reason why sufficient attention is not paid to congestion in these localities is the difficulty of obtaining satisfactory statistics.

Dr. Bertram H. Waters, in a recent contribution,[5] showed how very frequent tuberculosis is among the garment workers of New York City, the majority of whom work in our crowded and insanitary sweatshops or so-called factories, located mainly in the tenement-house districts.

That tuberculosis is most prevalent among the poor, or as I may more justly express it, among those who receive low wages, is too well known to need statistical evidence; however, it is interesting to recall here the oft-quoted statistics of Hamburg which show that the highest mortality is in families with a maximum earning of $300 per year, being three times as high as in families whose income is $1,250, and about four times as high as in families earning $6,000 a year.[6] If such statistics concerning congestion and wage earning would be taken in the United States, I am sure the fact that tuberculosis is a disease of low wage would be amply shown. In the experience of a single charity society, the New York Association for Improving the Condition of the Poor, it has become very evident that the prevalence of tuberculosis is in the majority of instances the result of insufficient earning on the part of the head of the family.

---

[1] Knopf, S. A.: Tuberculosis and Congestion, New York Med. Jour., Sept. 4, 1909.

[2] Fishberg, Maurice: A Study of the Child in the Tuberculous Milieu, Arch. Pediat., February, 1914.

[3] Barnes, Charles B.: Tuberculosis Among Homeless Men and in Lodging Houses, Jour. Outdoor Life, April, 1914.

[4] Knopf, S. A.: The Tuberculosis Problem in Prisons and Reformatories, International Prison Commission, Fifty-Eighth Congress.

[5] Waters, Bertram H.: A Statistical Review of the Work of the Tuberculosis Clinics, New York Med. Jour., Oct. 28, 1911.

Thanks to the courtesy of Mr. William H. Matthews, director of the Department of Family Welfare, I have come into possession of the advance sheet of a report soon to be published, from which I will quote the following:

> The low wages of many of the men whose widows and orphans had to be taken care of by the society may well be given as one of the reasons why many of the families were more or less dependent before the husband's death. Again, the result of the low wage, insufficient to supply the food, clothing and shelter necessary to healthful existence undoubtedly meant that the bodies of the men, women and children were exposed to diseases that especially prey on underfed, poorly clothed and badly housed people. Tuberculosis cut short the lives of 40 per cent. of these men.

Their minimum wage was $8 and their maximum wage $18 per week.

In the letter accompanying this report Mr. Matthews says:

> Generally speaking, as I read relief-case records and go in and out of the houses of our families, I am constantly depressed as I note the amount of poverty and want that comes through the presence of this disease (tuberculosis), and again with the fact that poverty seems responsible for the quick hold which it gets on so many of our families; that is, it appears in terms of both cause and effect, and it is often difficult to determine where the line between the two may be drawn.

When tuberculosis has entered the homes not only of the absolutely but even of the moderately poor, or the families of the well-to-do, it proves to be one of the most costly of all diseases, particularly if for one reason or another the patient cannot enter a public institution. In the best and most economically conducted public institutions the maintenance of a tuberculous patient costs at least $10 per week. If the tuberculous invalid happens to be the principal breadwinner of the family, poverty and suffering of all is sure to be the result, and unless the disease has been discovered early and a speedy cure is accomplished, the poverty of the family is liable to become as chronic as the disease itself.

The fallacious belief, still prevalent among the masses, that whisky will prevent and cure tuberculosis has produced a goodly number of alcoholics; while, as is well known, instead of being a preventive, alcohol is a strong predisposing factor to the disease. Of course, just as poverty may be the cause or the result of tuberculosis so alcoholism may be the cause or result of poverty. The drunkard who spends his earnings for alcohol will become a pauper. But in justice to many unfortunate sufferers among the poor, it must also be said that it is because of the horrors of sickness and poverty that some cannot resist the temptation to seek forgetfulness in the cup.

I believe what has been said thus far suffices to show that tuberculosis is as often the cause as it is the result of poverty. But whatever little merit my humble contribution may have through presenting these facts to the medical and the lay world, unless I can offer some remedy, the mere reiteration of what is known to all physicians and laymen interested in the tuberculosis cause will have little value.

Before making any suggestions, however, a word should be said on the subject of the annual cost of tuberculosis in the United States which, were it not for our vast resources, would be enough to impoverish the nation. A very careful and conservative estimate of the economic cost of tuberculosis in the United States was made by Professor Irving Fisher in 1912.[7] He estimated the number of deaths at only 155,000 per annum and considered a minimum estimate of the monetary losses which these deaths represent as follows:

Loss to the patients		$665,000,000
By sickness	$145,000,000	
By death	520,000,000	
Loss to others		570,000,000
By sickness	220,000,000	
By death	350,000,000	
Total		$1,235,000,000

As Professor Fisher told me afterward, he had not in this estimate included the cost of tuberculosis in childhood. In a paper which I presented before the Section on Hygiene of Infancy and Childhood of the International Congress on Hygiene and Demography in the same year,[8] I estimated the average duration of the life of the 50,000 children who die annually from tuberculosis in the United States as about 7½ years, and figuring the cost to parents and community for each life at only $200 per annum, the financial loss thus represented is $75,000,000; and these children have died before they have been able to give any return to their parents and the community. Add these $75,000,000 to Dr. Fisher's estimated cost of tuberculosis in adult life, we find that we are spending $1,310,000,000 for a preventable and curable disease.

Now let us see briefly what would be our financial gain if we treated all the patients, young and old, at the right time and in the right place, while the disease is still curable.

I recently attended the celebration of the tenth anniversary of the Gaylord Farm Sanatorium at Wallingford, Conn., with which it has been my privilege to be affiliated since its inception. The institution, which is supported partly by philanthropy and partly by state aid, exists for the purpose of curing the incipient and early cases of tuberculosis and restore the patients to their full earning capacity. Here is the result of ten years work, and the figures speak for themselves:

Gaylord Farm Sanatorium, Actual Earnings of discharged patients up to May 1, 1914		$1,400,000.00
Total expenditures to May 1, 1914, Lands, Buildings and Equipment	$195,958.08	
Interest on above at 5 per cent.	55,178.94	
Total maintenance	345,298.64	
		$596,435.66
Excess patients' earnings over expenditures		$803,564.34

These statistics are carefully compiled by Dr. David R. Lyman, the able superintendent of the sanatorium, and I vouch for their accuracy.

---

[6] Gottstein, R., in Brauer, Schröder and Blumenfeld: Handbuch der Tuberkulose, i, Johann Ambrosius Barth, Leipsic.

[7] Fisher, Irving: A Revised Estimate of the Economic Cost of Tuberculosis, Tr. Nat. Tuberc. Assn., 1912.

[8] Knopf, S. A.: Tuberculosis and Other Diseases in Schools and Colleges, New York Med. Jour., Jan. 25, 1913.

It is by carefully tracing and watching over the patients discharged from the institution that Dr. Lyman and his co-workers have been able to gather these statistics. It is by keeping tab on all the patients who pass through tuberculosis clinics, dispensaries, and hospital sanatoriums that an infinite amount of good in the aftercare of the cured patients or those in whom the disease is arrested can be accomplished. I go even further, however, and say that in order that our institutions, sanatoriums, hospitals, clinics, dispensaries, and preventoriums for the tuberculous adult or child shall be really effective in diminishing the number of cases and thus prevent tuberculosis from becoming the cause of still more poverty, the home of the patient should be visited by a social worker, not only after the tuberculous patient has passed through the sanatorium and graduated therefrom, but on the day of entrance. By an investigation of the home life of the individual admitted to an institution we should find out why that man, this woman, or this child became tuberculous, and immediate steps should then be taken to remove the cause and thus prevent other members of the family from contracting this costly disease with its wake of suffering, misery, and death.

The next and most important thing for us to do is to teach the masses that quality is better than quantity in the raising of a family. A universal and periodic examination of all citizens for tuberculosis and other poverty-producing diseases should be made obligatory; the poor should be examined free and the well-to-do should pay a reasonable fee. All individuals discovered to be tuberculous should be placed under medical care. Predisposed children should be educated in preventoria and open air schools. The pregnant woman should not be allowed to work as a wage earner for two months before and for one month after confinement.

In view of the fact that thousands of grown-up men and women are seeking work, there is not the slightest excuse for the continuation of that abomination and disgrace to our nation known as child labor. State and municipal labor bureaus should be established to send those seeking work where workers are needed. A minimum wage law should be established and be framed so as to assure a living wage to every living citizen.

To improve the housing conditions of the masses we must have better housing laws and their more rigorous enforcement. But that alone will not suffice. Our philanthropists, big and little, must listen to the call of duty and help to build more model tenement houses or individual sanitary homes for which the rent shall be low, and not keep the land unoccupied for speculation until greater congestion shall have increased its money value.

For the homeless man, there should be decent public places where for a reasonable sum he may find sanitary living quarters by day and by night. The employers of men and women in factories, workshops, stores, and offices must bear in mind that light and air and reasonable working hours increase efficiency and make their employees more loyal and helpful. Our brothers and sisters, morally diseased and confined in prisons, should also be thought of in our combat of tuberculosis. Congestion, underfeeding, bad sanitation, and bad treatment of our prisoners will react inevitably on the health, happiness, and prosperity of the community. The more sanitary are our prisons, the less crowded and congested they may be, the more humane we are in the treatment of the inmates, the more of these unfortunates will be redeemed. In short, unless there is more humanity and social justice, a more wise administration of all 'round state and municipalities, a greater willingness of our well-to-do citizens to help in overcoming tuberculosis as a disease of malnutrition, bad housing, and low wage, we will continue to have tuberculosis as a most frequent cause of poverty, and poverty again causing tuberculosis, and we will continue to lose 200,000 valuable lives annually, representing a loss of nearly a billion and a half dollars to the community.

It should be considered the duty of every municipality to teach the masses temperance, sanitary living and how to prepare nutritious food.[9] This should be done by means of popular literature, lectures and demonstrations. To relieve the underfeeding of the masses, I favor such institutions as are known in Germany as *Volksküchen*, that is to say, public kitchens where substantial, nutritious meals for an entire family can be purchased at a minimum price.

I cannot conclude this report on tuberculosis as a result and cause of poverty without referring to one feature which has been thought of very little, except perhaps by those who look on the tuberculosis problem in all its aspects from a medicosociologic point of view and which was expressed eloquently and forcefully in a recent address by Deputy Health Commissioner Haven Emerson of New York.[10] Many corporations, employers of large bodies of men and women and even some state and municipal departments now require a physical examination for tuberculosis before they accept any one in their employ. By this precaution these corporations, employers and governmental departments surround themselves with those physically best fit to do their work. What is the result of this ever increasing and from some points of view most laudable practice of examining all candidates for employment and excluding the suspected or tuberculous? Are we are creating a large army of persons declared by this exclusion unfit for the struggle of life? Tuberculosis must then also be held responsible for this source of increasing poverty among the seemingly unfit. It is a tremendous problem which thus confronts our statesmen and political economists, and indeed all of us. At this time I feel myself not prepared to suggest any other solution, except the inauguration of universal and obligatory insurance against disease, infirmity and old age (including, of course, tuberculosis) by state government or by private insurance companies under state control, similar to those in Germany for all working men or women earning less than $1,000 per year. There should be also encouraged a voluntary insurance by those earning more. For the insurance for the former class the employer should be held responsible.

As an additional means to provide sufficient sanatorium and hospital facilities, a special tuberculosis tax should be levied on house and factory owners enabling the municipal authorities to construct, equip and maintain such much needed institutions, because of the very beneficent examination for tuberculosis of many employees and workers and their exclusion if found afflicted with the disease. Lastly, I would wish to make as strong and as earnest an appeal as possible to statesmen and philanthropists for the establishment of industrial colonies in which such unfortunate workers may have an opportunity not only to support themselves and their families in decency, but by which the opportunity for their complete reestablishment to health and vigor may also be afforded.

---

[9] Lusk, Graham: The Fundamental Basis of Nutrition, Yale University Press.

[10] Emerson, Haven: Address at the dedication of the Mt. McGregor Sanatorium for Tuberculosis Employees of the Metropolitan Life Insurance Company.

As a conclusion to this necessarily rather meager report on a great and overwhelming theme, permit me to quote the following paragraph from the "Tuberculosis-Day Prayer" of my inspired friend, Professor Walter Rauschenbusch of Rochester, N. Y.:

> O God, we pray Thee for all whose vigor is being drained by slow and wasting illness. . . . Since we are all jointly guilty of the conditions which have bred their disease, may we stand by those who bear the burden of our common sin and set the united will of our community against this power that slays the young and the strong in the bloom of their life. May this death that creeps from man to man be a solemn reminder that we are all one family, bound together in joy and sorrow, in life and death, that we may cease from our selfish indifference and together seek Thy kingdom and Thy righteousness which will bring us health and life.

16 West Ninety-Fifth Street.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. KNOPF AND HURTY

Dr. Woods Hutchinson, New York: Poverty is a medical problem, first, because of the heavy part that disease plays in its production. The most laborious and carefully thought-out report of the recent English Royal Commission on Poverty states that, in the commissioners' judgment, at least from 55 to 60 per cent. of the poverty in Great Britain is due to one cause—sickness. The same finding has been repeated time and again by other investigators; for instance, the Charity Organization Society of New York investigated cases of unemployment and destitution. In one winter, of 2,200 families investigated, 35 per cent. were found to be in destitute condition on account of tuberculosis, and 25 per cent. more on account of other diseases. A committee of equalization, to see that every child born into the community shall have everything that it needs in the way of food-supply and education before anybody is allowed to have too much seems to me very urgently called for under the circumstances. As disease and ill-health are such important factors in the causation of poverty, attempts have been made, in most of the civilized countries of Europe, to provide for the medical care of the poorer and less successful elements of the population by some form of government health insurance. It is only a question of time before some such process is brought up for consideration and action in this country. We ought to prepare ourselves to meet that movement and have a body of facts on which we can base our view of what we think ought to be done that every individual may get the best possible medical attention and the protection against disease to which he is entitled. I would suggest that it should be made in some way possible for physicians, particularly younger men, to experiment with some form of annual contract or health insurance on terms to be determined by this organization, including a physical examination at stated intervals, and an inspection of the home and place of work. It can be done for a comparatively small sum because it brings under contribution the considerable percentage, ranging anywhere from 15 to 25 per cent., of the community whose medical care we now perform for nothing through charity, or hospitals, or through uncollectable bills, etc. If we could devise some scheme by which the poorer classes of working men who often cannot afford to pay a $2 fee for a visit can have the benefit of a physician's care by coming into some organization provided and planned by the doctor himself it would be a great addition to the health of the community. This Section should appoint a committee, or should request the House of Delegates to appoint one, to study this problem and see under what conditions some voluntary system of yearly or contract practice could be entered into. The sum that could be fixed for those in poorer circumstances is really much smaller than one would readily believe. The amount fixed under the Lloyd-George bill in England was 8 shillings and sixpence a year—a little over $2; and the physicians of England were making a rate of 5 shillings a year in voluntary organizations of their own and made fairly good and so-called remunerative incomes out of their private clubs.

Dr. Edward O. Otis, Boston: Dr. Knopf has said that tuberculosis is preeminently a disease of congestion of population. I should like to modify that statement and say, it is a disease of the conditions which congestion produces. I think it is a mooted question with us whether or not people can keep in health under congested conditions of city life. One thing is sure, we are never going to get the poor of our larger cities out into the country, and I think that what we must do is to make living conditions wholesome under congested conditions in the cities. We have found out now that it is not foul or stagnant air that is particularly injurious, provided we can keep it moist and in motion. We have learned, also, that tuberculosis may exist quite as extensively in the country districts as in the congested city. I was told some years ago by the commissioners of Minnesota who were appointed to look into the question of tuberculosis with the idea of establishing a sanatorium, that the largest amount of tuberculosis that existed in Minnesota was not in the two cities of St. Paul and Minneapolis, but among the Scandinavian farmers. I have practiced among the poor, as my friend Dr. Knopf has, for a great many years, in a large city among the people of the slums in dispensary work, and I have often found, as I dare say all have who have had similar experience, that the number of children in a poor family was the salvation of that poor family; that when the father was disqualified from working for one cause or another, he was kept from poverty by the children taking up the burden of the family support. I agree with Dr. Hutchinson, that if we can only give the children of these large families a fair chance, they will grow up as healthy and well, and as useful citizens to the community, as the one child of quality, so to speak, in the one-child family, who is not infrequently a failure. Indeed, with us in Boston, unless we had had the immigrants and the large families of the immigrants, the population, so far as the Anglo-Saxon portion of it was concerned, would have been a decadent one, for the purely American race is rapidly dying out. I think we have great hope in the large families of the poor if we can only make their congested condition of living wholesome ones.

Dr. S. A. Knopf, New York: I can but disagree with my friend, Dr. Otis, when he thinks that the so-called modern idea that we can dispense with fresh air so long as the air is in motion and properly saturated is a correct one. I for one will not subscribe to it, and I consider it a dangerous doctrine to teach, at least when we deal with tuberculous patients. Granting even that the exhalation of carbonic acid gas from our lungs is not as injurious as we formerly considered it, there is something decidedly beneficial in outdoor fresh air which cannot be found in the confined air, no matter how much it may be in motion; hence I would strongly protest against any change in our conception of the danger from congestion and I would equally protest against teaching that outdoor fresh air is not so essential to our well-being or the treatment of tuberculosis as was formerly thought. On the contrary, let us continue to preach and practice outdoor sleeping and outdoor living as far as possible. I have no time to enter into lengthy discussion as to the advisability of small families among the poor, the undernourished, and the tuberculously inclined; all I can say is that in my experience among the tenement dwellers in New York I found that in larger families among the poor, particularly where there was tuberculosis, the children die young, but not before they have caused their parents a good deal of sorrow and anxiety and cost the municipality a good deal of money, and all in vain. This, to my mind, is more race suicide than the prevention of conception in a tuberculous mother. To prevent such a conception I believe is the physician's duty, and I am willing to take the responsibility before the law and my God for every time I have prevented the procreation of a tuberculous offspring and thus perhaps have, if not saved, at least prolonged the life of a mother.

SOME EXPERIENCES WITH ALCOHOL INJECTION IN TRIGEMINAL AND OTHER NEURALGIAS *

WILFRED HARRIS, M.D.
LONDON, ENGLAND

It is a great pleasure to me to be enabled, through the courtesy of the officers of your Section, to place before you the following observations on the alcohol injection treatment, and I hope to learn much from your experiences and criticism. Schlösser's brilliant idea of injection of the main branches of the fifth nerve at their deep foramina, with strong alcohol, has now been on trial for ten years by workers in all countries, and clear indications for its use, and when to avoid it, are now capable of formulation. My personal experience of the method now dates back six years, the first case in which I used it being literally equivalent to a laboratory experiment on a human nerve.

A woman suffering from strong hemiplegic contracture of the fingers was unable to use her extensor muscles of the wrist and fingers, on account of the strong flexor spasm instantly induced. Under local anesthesia with eucain, I therefore dissected out the median nerve above the elbow, and injected it with 5 minims of 80 per cent. alcohol, using a fine hypodermic needle. Instantly the flexor spasm and contracture were relaxed, and she was able at once to extend her wrist and fingers; at the same time analgesia to pin-prick and anesthesia to cotton-wool developed over the anatomic distribution of the median nerve on the hand, while a week later typical reaction of degeneration to electrical testing became evident in the flexor muscles and thenar eminence. Such a result was as good evidence as can be required of the destructive effect of strong alcohol, both in sensory and motor nerve-fibers, and impressed on me, which is by no means yet well understood, that alcohol must not be injected into a mixed motor and sensory nerve, such as the sciatic, for the treatment of pain, on account of the motor paralysis and foot-drop which will certainly ensue.

Many patients who have thus been operated on have escaped paralysis by their good fortune of the operator missing the nerve-trunk and making the injection outside the nerve-sheath. When using this injection in the treatment of chronic trigeminal neuralgia, it is only the third division which contains any motor fibers, and the paralysis of the masseter, temporal and pterygoid muscles resulting from a properly placed injection in the foramen ovale is of small account, owing to the mandible being served by the corresponding muscles of the other side, and also to the fact, when the third division on one side is made completely anesthetic on the lower jaw, lower lip and half of tongue, such patients invariably eat on the other side of the mouth entirely.

In two patients with bilateral trigeminal neuralgia in whom I have injected the foramen ovale on each side at the same sitting, there has been difficulty in chewing and closing the jaw for a few days.

I have had experience with some 200 cases of *chronic trigeminal neuralgia.* The first division, in this type of neuralgia, is very seldom involved alone, pain in the second division being its invariable accompaniment sooner or later, though I have known the neuralgia limited to the supra-orbital distribution for three years before the second division became involved. In one such case, a woman whom I injected four years ago, I first injected the second division at the foramen rotundum, causing deep and complete anesthesia on the cheek, upper lip and upper gum; pain ceased from that moment in the second division, but continued severely above the eyebrow and on the top of the head. I then injected the supra-orbital nerve at the notch, causing deep anesthesia on the forehead and top of the head, with the resultant loss of all pain except over a small area, the size of a shilling, at the back of the anesthetic area on the top of the head, at its junction with the great occipital distribution; here the pain continued in unabated paroxysms, which ceased entirely and permanently with a hypodermic injection of alcohol under the scalp at this area. She is now, four years afterward, still perfectly well and free from pain. This is the only case I have seen of chronic trigeminal neuralgia in which such a local painful area persisted at the extremity of the anesthetic area.

Somewhat resembling the latter case, however, was that of a woman who struck the top of her head a violent blow against a low doorway.

Though feeling very shaken, she went out to dinner that night, but had to leave suddenly owing to faintness and vomiting. Ever since that time she became subject to paroxysmal attacks of intense pain, every few days, referred to the exact spot on the top of the head which she struck. When I saw her two years later, this area was slightly tender, and pressure on it started a slight attack of pain. I therefore recommended her doctor to inject this area hypodermically with strong alcohol, which he did twice, with a week's interval. This cured her pain, and she has never had another attack.

The supra-orbital is the only branch of the first division which I attack, and I have never attempted to reach any other branch within the orbit, as I consider this both dangerous and unnecessary.

The second division, or superior maxillary nerve, may be injected with advantage, either at the foramen rotundum in the sphenomaxillary fossa, or at the exit of the infra-orbital nerve on the cheek. The latter foramen is usually quite easy to find, a needle 3 cm. long being pushed through the cheek at the level of the upper border of the ala nasi, and 0.5 cm. external to it. The needle usually finds the foramen in a direction upward and outward from this point.

A certain amount of swelling and edema of the lower eyelid and cheek always result from this injection, lasting from one to two weeks. This injection may be sufficient to abolish all the pain in certain cases of trigeminal neuralgia affecting the second division, in which the pain is limited to the skin of the ala nasi and lip, when the lightest touch on the lip or nose may start paroxysms.

In the majority of cases, however, the pain is also referred to the upper jaw, and sometimes to the palate, and in these cases the destruction of the infra-orbital nerve will fail to give complete, or even much relief. The superior maxillary nerve must then be attacked farther back at its exit from the foramen rotundum, in order to inject it at a point before it has given off the posterior dental branches, and the sensory branch to Meckel's ganglion and the palate. This is a difficult injection to perform properly, so as to cause deep anesthesia of the whole nerve, and it is more difficult to be sure of one's results after the infra-orbital nerve has already been made anesthetic by the peripheral injection. If, therefore, a second division neuralgia clearly involves the upper jaw, as well as the skin of the nose and lip, as it does in the majority of cases, attempts should be made to inject the nerve at the foramen rotundum before injecting the infra-orbital canal.

---

* Read before the Section on Nervous and Mental Diseases at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

I use two routes for this posterior injection; the first, and preferably, through the cheek in front of the coronoid process and behind the superior maxilla. Sinking the needle as close as possible to the bone at a point about 6.5 cm. measured from the middle of the external auditory meatus, a 3 inch needle, 0.8 mm. caliber, is directed upward at an angle of 40 degrees, and backward in a line with the ascending orbital process of the malar bone. At a depth of about 5 cm., the needle either strikes the external pterygoid plate, or slips in front of its anterior border into the sphenomaxillary fossa. The pterygoid plate is a useful landmark, as the foramen rotundum lies barely more than a centimeter internal to its anterior border; if, therefore, I find that my needle slips into the fossa without first striking the plate, I withdraw my needle slightly and feel backward with the point for the plate, noting then the depth to which my needle has been sunk. Then maneuvering the point in front of the edge of the plate, I push the needle onward in the same line to a further depth of not more than 1.5 cm. If the needle has been fortunately directed, the nerve will be struck, the patient indicating this by flinching slightly and complaining of pain either deeply at the site of the needle, or else referred to the nose, lip or cheek. It is, I think, quite as common for the twinge of pain to be referred only deeply, and not along the distribution of the nerve. I then inject 3 or 4 minims of 5 per cent. novocain solution, the patient instantly feeling a sensation of a spray over the face, and after two or three minutes light anesthesia will develop on the lip and cheek. Whether this is so or not, I change syringes now, and inject a few minims of 90 per cent. alcohol, taking great care to hold my needle perfectly steady.

Certain difficulties may be encountered in attempting this route for injection of the second division, owing either to the coronoid process of the mandible coming far forward, or to the bulging backward of the antrum in the maxilla. Indeed, it may be impossible to direct the needle between these parts, and in front of the external pterygoid plate, so as to enter the sphenomaxillary fossa. In these cases I then try for the nerve from behind the coronoid process, passing my needle through the cheek about 4 cm. in front of the middle of the external auditory meatus, on the line drawn from the incisura notch to the bottom of the ala nasi, so as to pass over the bottom of the sigmoid notch on the lower jaw. The needle must be pushed in slightly upward and forward, the external pterygoid plate felt for and so on, as already described. With this route there is probably less risk of hematoma from wounding the internal maxillary artery, though the nerve will be hit usually in front of the branch to Meckel's ganglion, instead of behind. Consequently there will be in these cases no anesthesia produced of the palate.

In some cases in which the pain appears limited entirely to the second division, the neuralgia may continue unabated after a successful injection of this division, and disappears only and finally when the third division has also been injected at the foramen ovale. Thus, a man, aged 71, had the infra-orbital nerve divided and torn out for second division neuralgia; after complete freedom for three years the pain then returned in the nose, lip and upper gum with great severity, though the skin of the cheek and lip was totally anesthetic. I tried injection of the second division, both posteriorly and at the infra-orbital foramen, but failed to make any impression on the neuralgia. I then injected the third division at the foramen ovale, causing complete anesthesia of its distribution, the pain disappearing from that moment for two years, since when slight warnings of pain are recommencing.

Much more certain than injection of the superior maxillary nerve is injection of the third division at the foramen ovale.

For this I use roughly Levy and Baudouin's line. Here again, as I have mentioned for the second division, perhaps more often than not when the nerve is struck by the needle, the patient complains of pain situated deeply where the needle is, rather than in the lower lip, jaw or tongue. If my needle is in the right direction, very slightly backward and upward, and at the right depth, varying from 1⅝ inches to 2½ inches, according to the width of the head and fatness of the cheek, when the patient flinches I carefully withdraw the brass wire stilet from my needle, and inject a few drops of 5 per cent. novocain. If any resistance to the push of the piston is felt, the needle may be within the nerve; but if not, I push the needle slightly deeper, and inject a few more drops. I then, after a minute or so, change my syringe and inject a few drops of 90 per cent. alcohol, as already described. Then, after half a minute or so, testing with a pin the lower lip and tongue, the presence or absence of anesthesia is a sure test, as to whether the nerve has been properly injected or not, and the needle must be slightly withdrawn and tried in a fresh direction, until deep anesthesia results from the injection. Rarely is there any risk of hematoma in this method of reaching the foramen ovale, the only artery liable to puncture being the middle meningeal; but I have never known it give any trouble. The internal maxillary artery is usually well protected, as it turns inward well below the level of the sigmoid notch.

When working with the needle to find the nerve, the stilet should always be kept pushed within it up to the point, in order to keep any drop of blood from entering the caliber of the needle. When it is thought that the needle is correctly placed, and the stilet is taken out in order to fit on the syringe, if blood should drip from the needle, the needle should be instantly withdrawn and washed out with saline, as its point cannot have been within the nerve, and if alcohol were then injected through the needle it would instantly cause firm clotting to occur within the needle, so that no further injection could be done. If the needle is directed too far backward, pain may be complained of deep in the ear, owing to the needle pricking the eustachian tube. When this occurs, the needle should be at once withdrawn slightly, and the nerve searched for a little more forward. Care should be taken never to inject alcohol into the spot when pain is complained of deep in the ear, as complete deafness of that ear, due to eustachian obstruction, may be produced, lasting for many months. This characteristic pain must be distinguished from pain referred to the external ear, which is sometimes produced when the auriculotemporal branch of the third division is struck by the needle close to the foramen ovale; in the latter case the needle should be thrust in for another millimeter, and the novocain and alcohol injected, as already described, when anesthesia will probably soon be produced over the whole area of distribution of the third division.

It may be that all this time the needle has not touched bone at all, but I prefer to feel the under surface of the sphenoid with the point of the needle, as it is a good landmark for the level of the foramen, and the needle may be sometimes slipped along it into the lips of the foramen. Two other bony landmarks I also find of service. Posteriorly, the needle will engage the spine of the sphenoid at less than the required depth, and the bone will be felt to slope deeply inward. This may be used as a guide to the foramen, which lies just in front and above. In a few cases even prolonged searching does not discover the nerve at the foramen, when the usual direction has been first explored, and another bony guide which may then be tried is the external pterygoid plate, by pushing in the needle in a slightly anterior direction, when it should be struck at a depth of 4 or 5 cm. Then, with a slight sawing movement, the point of the needle should be made to slip off its posterior edge, when the foramen may be reached above and behind this point. Occasionally, in abnormally shaped skulls, the foramen may be found much farther in front of the ordinary line than is usual, and in yet others, particularly in small heads of women, the line to the foramen may be directed backward at a much greater angle than usual, quite 30 degrees. In the latter type difficulty may be experienced on sinking the needle in the usual direction, by the point of the needle striking bone, which seems to block the needle in every direction. This is the external pterygoid plate, and the needle must be turned considerably more upward and backward to reach the foramen ovale. Before I recognized this condition, I mistook this bone for the spine of the sphenoid, and in two cases, while searching forward for the foramen ovale, my needle slipped in front of the external pterygoid plate, and struck a nerve, which I then injected, and found to my astonishment that I had produced anesthesia of the second division, when I had been searching for the third division at the foramen ovale.

Another small accident that may be met is that when the needle is directed too low, without taking the under surface of the sphenoid as a guide, the wall of the pharynx may be punctured. The patient will indicate this by complaining of pain in the throat, and if the injection of alcohol be made now, he will at once complain of burning sensation on the back of the tongue. The needle should be at once withdrawn a centimeter or more, and I have never known any harm to result from this.

Although in certain cases, peripheral injection of the infra-orbital nerve may control for a time neuralgia of the second division, I do not consider that injection of the mental foramen is of any real service in neuralgia of the third division. It is a very difficult foramen to find, and even though it be properly injected, the resulting anesthesia of the lower lip and chin does not in any way diminish the pain in the lower jaw, ear or tongue. I never therefore now inject this foramen, but always attack the third division at the foramen ovale.

INJECTION OF THE GASSERIAN GANGLION

When first I practiced injection of the foramen ovale on the dead body using the method already described below the zygoma, I found, practically invariably, that when the needle point was placed within the nerve at the lips of the foramen, without pushing the needle through the foramen, injection of solution of methylene blue infiltrated the whole gasserian ganglion, the stain even surrounding the walls of the cavernous sinus, and even spreading down the anterior surface of the pons. Clinically I have thus injected the ganglion in scores of cases, anesthesia first appearing over the third division, and as more alcohol is injected, a few drops at a time, the anesthesia spreads over the second and first divisions until, after using 1 to 1.5 c.c., the whole territory of the fifth nerve has become anesthetic. The patient indicates this spread of the alcohol by slight burning pain being felt around the eye and top of the head, and on testing with a pin there will be found total anesthesia to pin-prick and to pressure over the whole front of the head on one side, including the eyeball. If the alcohol has been slowly injected a few drops at a time, the anesthesia being tested after each injection, this total anesthesia will begin to fade away after a lapse of five or ten minutes from the first and second divisions, and an hour or so later, or the next day, there will be found slight analgesia on the forehead and cheek only, while total anesthesia persists over the third division.

It is important not to inject more than a few drops of the alcohol at a time, and to wait at least two minutes for testing the anesthesia on the forehead before pushing in any more alcohol. As soon as total anesthesia develops over the forehead and eyeball, there is a possibility that the damage to the ganglion-cells may be so great that the total anesthesia does not evaporate, as is usually the case, though in the majority of cases as much as 0.5 c.c. alcohol may be further injected after total anesthesia appears, without risk of its being permanent. When a total of more than 1.5 c.c. has been injected, this risk is a very real one, and if total anesthesia still persists half an hour after the injection, the eyelids should be closed by rubber plaster and a pad and bandage, in order to prevent the risk of keratitis developing, which is certain to appear on the following day if total anesthesia is still present. If, however, sensation is returning on the first division and pressure on the eyeball can be felt definitely, then the risk is past. When, however, the anesthesia is still complete on the following day, then it is practically certain to persist for weeks or months, and the eyelids should be sewn up, leaving a chink at either canthus for washing out the palpebral cavity with saline. So long as the lids are kept closed, keratitis will not develop, and even a certain degree of keratitis which had developed, previous to the sewing up of the lids, will clear up. I have been forced to have this treatment adopted in seven patients whose ganglion I had injected by this method. The cure of the neuralgia is, however, certain, and likely to be permanent, though my first case of injection of the ganglion dates back only four years.

In many subjects it is possible to push the needle through the lips of the foramen ovale into the ganglion itself, though this is rarely necessary. A curious point, which I am unable to explain, is that after the ganglion injection which I have described, the anesthesia on the first division is more intense and more lasting than even on the second or third divisions, a point which is peculiarly unfortunate, owing to its dependent keratitis.

In over sixty cases in which I have thus injected the gasserian ganglion, in one case slight diplopia, due to sixth nerve weakness, developed immediately, and did not disappear entirely until three months had elapsed. This was presumably, due to alcohol infiltrating the outer wall of the cavernous sinus. In one other case a curious result occurred which I cannot explain. In a woman aged 64, with chronic trigeminal neuralgia affecting all three divisions on the left side, which had begun three years previously with neuralgia limited to the first division, I injected the third division and the ganglion as described above. As total anesthesia developed, she became giddy and swayed slightly to the left, and coarse rotatory nystagmus toward the right side, with left facial paresis and total left nerve deafness, appeared. There was no trace of loss of consciousness, and the vertigo disappeared after a few minutes; the nerve deafness had disappeared within an hour, and the next morning the facial paresis and nystagmus were scarcely noticeable, and both had completely disappeared in five days, and she felt perfectly well. Though it is possible to conceive that the alcohol might spread along the ventral surface of the pons and involve the seventh and eighth nerves, yet the nystagmus would suggest a central lesion, cerebellar or nuclear.

PATH OF THE TASTE FIBERS

One of the striking results of my series of injections of the third division at the foramen ovale and of the gasserian ganglion has been the very large proportion of cases in which immediate *loss of taste* has developed on the anterior half of the tongue on that side. With almost monotonous regularity my experience has been to find loss of taste to all forms develop immediately on the anesthetic half of the tongue, in proportion to the depth of the anesthesia. I have taken the utmost care in the testing of these patients, and there can be no possible doubts of my results. This loss of taste, as I have said, develops immediately, and the sensation of taste remains absent so long as the anesthesia of the third division persists, and I have seen loss of taste well marked twelve months and two years after injection. In three or four cases I have seen sensation of taste partially present, though obviously diminished, when the tongue showed deep anesthesia, though the auriculotemporal portion of the third division had escaped almost entirely. In five cases only have I seen almost normal acuity of taste persist when all three branches of the third division were deeply anesthetic.

With one exception, in all my cases of injection of the gasserian ganglion in which deep anesthesia of the whole fifth area was produced, there was complete loss of taste on the half of the tongue.

Curiously, in the last ganglion case I injected, four days before I sailed, although there was total fifth anesthesia, taste was scarcely affected, though the anesthesia was total and persistent, necessitating sewing up the eyelids, on account of commencing keratitis.

Leaving these cases aside for the moment, the immediate loss of sensation of taste produced by injection at the foramen ovale is certain proof that in the large majority of persons, the taste fibers from the tongue pass along to the gasserian ganglion by the third division, since the result is immediate and can not therefore be due to any vascular changes, the result of nerve degeneration, as Cushing has tried to explain the loss of taste he has found after gasserectomy. At the same time, we know that the taste fibers do not pass with the lingual nerve, but leave that nerve by the chorda tympani and run in conjunction with the facial nerve in the middle ear, to the geniculate ganglion. So far the afferent course of these gustatory fibers is beyond dispute, and it is their path from the geniculate ganglion to the pons which has been the subject of much argument. Various routes have been given for these fibers, the one now most in favor being along the pars intermedia of Wrisberg to the gustatory nucleus of the glossopharyngeal.

There is really no clinical evidence for this statement whatever, indeed, what evidence there is is entirely against it, and the chief reason in support of the statement is an analogy between the geniculate ganglion and the pars intermedia of Wrisberg on the one hand, and a spinal posterior root and its ganglion on the other. Now, my results show that in at any rate the majority of cases, the normal path for these taste fibers lies in the third division of the fifth nerve at the foramen ovale. Therefore the gustatory fibers must pass from the geniculate ganglion to the foramen ovale, and the only possible path appears to be along the small superficial petrosal nerve to the otic ganglion.

In some cases I have found that taste was also completely absent on the back of the tongue and palatal arches as well as on the front of the tongue; in others taste was notably diminished on the back of the tongue, and in a few, perhaps one-third, there seemed no loss of taste at the back. Since I have found in three of my cases of complete third division anesthesia that taste on the tongue was scarcely interfered with, I can only assume that in a small proportion of persons, the gustatory impressions from the tongue must pass from the geniculate ganglion along a different route, either by the pars intermedia of Wrisberg, or by the tympanic plexus and the glossopharyngeal nerve.

Bilateral Trigeminal Neuralgia.—True chronic trigeminal neuralgia is occasionally bilateral, in ten of my patients, or 5 per cent., this being the case. In four of my patients it affected both sides before any injection or other operative treatment had been done. In two others it appeared on the right side nine years and four years after gasserectomy had been performed on the other side. In two of the foregoing four cases I injected the foramen ovale on each side for bilateral third division tic at the same sitting, causing total anesthesia of the front of the tongue. This interferes considerably with articulation for a few days, one of the patients—a man—being unable to make his words intelligible for several hours. In the other patient—a woman—paresis of the masticatory muscles was more noticeable, she being unable to close her mouth the first day, and for a week or ten days she could not chew her food.

Geniculate or Otic Neuralgia.—My attention was first drawn to this form by reading the most interesting work of Ramsay Hunt on the sensory supply of the seventh cranial or facial nerve, and also the description by Pierce Clark and Taylor of their case of obstinate tic said to be cured by division of the pars intermedia of Wrisberg. Excluding those cases, not very uncommon, in which severe neuralgia in front of the ear accompanies facial palsy, or herpes within the auditory meatus, possibly due to geniculate inflammation, I have encountered two patients who suffered from almost identical paroxysmal neuralgia, which had lasted for eleven and ten years, respectively, in which the paroxysms of pain began in the throat or posterior palatal region on one side, and spread into the ear and in front of the ear on to the cheek, and down the side of the neck. The sudden onset and intensity of the pain, and the recurrent paroxysms closely resembled chronic trigeminal neuralgia, but the distribution of the pain made me doubtful as to their dependence on the fifth nerve, and in each case no alleviation was produced by a successful injection of the third division of the fifth. One of these patients was a man of about 48, who had suffered eleven years, the other an old lady of 87, who had had the attacks for nine years.

I have known the pain following geniculate herpes to be most intense and prolonged for many weeks, in a man of 44, without any facial paralysis. This case was sent to me by an aurist, and the herpetic vesicles were still visible on the tympanum and posterior wall of the meatus, ten days after the onset of the pain.

Postherpetic Neuralgia.—This should never be treated by alcohol injection, or by any other operative measure. The most frequent cases that are thus sent to me are the cases of frontal herpes affecting the ophthalmic division of the fifth. Sometimes the destruction is so great that total anesthesia of part of the forehead and top of head is produced; in others only slight numbing and sensation of tightness is felt. The pain varies in severity from a feeling of crawling and similar paresthesias to quite severe paroxysms, though less sudden and severe than in the case of chronic trigeminal neuralgia. Any injection or operative treatment in my experience makes these patients worse, though there may be apparent improvement for a day or two. The same may be said for postherpetic neuralgia affecting the second and third divisions, and the whole of the fifth, which are less common, and also postherpetic neuralgia of the trunk.

I have not yet performed injection of the gasserian ganglion for severe posthepetic neuralgia of the fifth, though theoretically it might effect a cure, yet not certainly so, as the lesion may be partly central and not only in the ganglion, as I have known division of posterior spinal roots fail to give relief in postherpetic neuralgia of the trunk.

Chronic Fibrositis.—This condition of the shoulder, back, buttock and sole of the foot may sometimes derive almost magical relief from alcohol injection. In many cases in which the pain had continued for years, seven years in one case, I have seen it disappear instantly and permanently after alcohol injection. This is perhaps most striking in the cases of plantar fibrositis following rheumatism, the patients being hardly able to stand or hobble about for months, owing to the pain produced by their weight stretching the plantar fascia and ligaments. In five such cases I have produced instant relief, so that the patient could not only walk with comfort, but jump about within five minutes of the injection. My method is to search for points of deep tenderness on pressure and mark them carefully. Then after sterilization with iodin, I sink a fine needle vertically down to the bone, injecting a few drops of novocain on the way. After half a minute 10 drops of 90 per cent. spirit is injected and the needle withdrawn, and the puncture sealed with collodion gauze. Sometimes three or four spots have to be injected, and occasionally a repetition is necessary next day or later, owing to the whole of the affected area not having been covered.

I do not find that this method is of any value in cases of diffuse tenderness, excepting when definite spots of intense tenderness are found. This is sometimes the case in fibrositis of the buttock and occasionally it may accompany a true sciatica. When using this treatment by alcohol injection for fibrositis of the buttock, great care must be taken not to inject the sciatic nerve itself with the drug. I may mention that I also use the treatment of injection of the sciatic nerve itself in some sciaticas with novocain and saline from 50 to 100 c.c.

In chronic *brachial fibrositis,* which is less common, I have also successfully used alcohol injection in six cases; here again precautions must be taken against injecting a nerve-trunk with alcohol. My method, after sinking the needle to the bone in the required spot, is to inject a few drops of novocain 5 per cent., and if no motor weakness or anesthesia has appeared within a minute, I then follow it with the alcohol. In suitable cases of this type the benefit and relief are immediate and most striking.

We are now in a position to weigh our results and to give a definite opinion as to the beneficial effects, or otherwise, of alcohol injection for neuralgia. In certain cases of chronic fibrositis of the buttock, trunk, shoulder, forearm and sole of the foot, it may effect an immediate and lasting cure of the pain, and, when properly used, never does any harm.

Among the cranial neuralgias, periodic supra-orbital neuralgia, such as the postinfluenzal form, with daily recurrences of pain for hours, may be completely cured by a single injection. The pain of inoperable carcinoma of the tongue may also be completely relieved by injection of the third division at the foramen ovale. Migrainous neuralgia, though often mistaken for chronic trigeminal neuralgia, is only rarely benefited by this treatment. Postherpetic neuralgia, whether of the face or trunk, should never be treated by alcohol injection. It is in chronic trigeminal neuralgia that the largest proportion of cures are wrought by this means, and practically its only rivals are neurectomy and gasserectomy. The former gives us no longer relief than neurolysis by alcohol injection, and the treatment cannot be repeated at the same place. With gasserectomy there is the necessity of a severe operation under an anesthetic, with a permanent scar, and the possibility of facial palsy, the frequency of keratitis and of permanent injury to the brain, such as hemiplegia, paraphasia, alteration of character and loss of mental ability. The latter symptoms are to my mind such dangerous and not infrequent possibilities of gasserectomy that I believe the operation should never be performed for the relief of chronic trigeminal neuralgia until alcohol injection has been fully tried by an experienced man. The permanence of the relief from pain in the majority of (not all) cases of gasserectomy is insufficient to weigh against the necessity for reinjection with alcohol that is likely to be necessary at intervals of one to four or five years.

Lastly, let me reiterate the necessity of taking one's time, with absence of all hurry, in performing the injections. Trial and test is, I am certain, the only safe method, and I am never satisfied until I have produced deep anesthesia, for then I know, if my diagnosis of chronic trigeminal neuralgia has been correct, that the patient will have many months' freedom, and in quite a large number, three, four and five or even more years' immunity from pain.

56 Wimpole Street, W.

ABSTRACT OF DISCUSSION

Dr. Charles R. Ball, St. Paul: I first obtained inspiration for making these injections of alcohol in facial neuralgia about six years ago from Dr. Patrick. The irregularity in the distribution of the branches of the fifth I think often accounts for the difficulty in making some injections. I tried repeatedly in one case to inject the third branch but always failed. One day while attempting to inject the second branch the patient complained of severe pain in the area supplied by the third branch. I immediately injected alcohol at this point and secured a perfect anesthesia in the part supplied by this branch, with complete relief of the pain. The danger in making this injection would not seem very great. In an experience with hundreds of injections, I have had only two accidents which, at the time, seemed apparently serious but eventually came out all right. In a severe and intractable tic douloureaux involving all three branches of the fifth nerve, I was attempting to inject the third branch when I noticed the development of a facial paralysis on the side I was injecting. My patient, who was past 80, became unconscious, went into a state of collapse and for a period of half an hour it seemed as though she might die on the table. My first thought was that she had had a stroke of paralysis, but afterwards it became clear that I had passed the needle up into the foramen ovale and injected the ganglion. Some of the alcohol had infiltrated back as far as the seventh nerve and induced the facial paralysis. After the patient returned to consciousness I found that a complete anesthesia involved all three branches of the fifth nerve. In another case, in attempting to inject the second branch, I got a severe hemorrhage. The eye, on the same side, began to come forward, just as though some unforeseen and mysterious force were pushing it out of the head. The pupil became dilated and the patient for an hour was unable even to see light. This patient also recovered without any serious injury to the sight. In my experience, Dr. Harris' method of injecting the gasserian ganglion from the point of entrance for the injection of the third branch is more practical and simpler than the method proposed by Härtel. In repeated trials on the cadaver I have been able to place the needle in a better location in the foramen ovale from the point recommended by Dr. Harris than the one proposed by Dr. Härtel. In cadaver injections, with Dr. Härtel's method, the chief difficulty seemed to be in entering the foramen at one side and causing the needle, instead of penetrating nerve tissues, to go through the dense fibrous tissue which lines the bony borders of the foramen. In this location the fibrous tissue makes a complete barrier, and absolutely prevents the alcohol from reaching the nerve or ganglion.

Dr. Peter Bassoe, Chicago: Dr. Harris rightly says that the injection method should not be used when the lesion causing the neuralgia is known to be proximal to the point at which the nerve can be injected. I believe there is one exception to this rule, however, namely, herpetic neuralgia. I saw immediate relief follow injection of the supraorbital nerve in a case of frontal pain which had existed for several months following a severe herpes with corneal involvement. I presume that the explanation for the relief must be that such a large portion of the neuron was peripheral to the point of injection that the entire neuron became impaired. In other words, we may assume that a retrograde degeneration took place. Dr. Harris' remarks concerning supraorbital pain at regular hours as being due to malaria, influenza, etc., are of interest. For the benefit of those who have little experience in neuralgia cases, it might be well to state that probably most pain of that kind is due to frontal sinus disease. I have frequently had sent to me for treatment by alcohol injection cases of frontal sinusitis and pressure within the nose. Dr. Harris said he has seen no good result from injecting the mental foramen. In one case, which happens to be the last one in which I injected alcohol, it seemed to be of value. It was a case of neuralgia of the middle branch, but pain in the middle branch area could be started by rubbing the lower lip. There was no pain in the distribution of the inferior division but after successful injection of the middle branch, rubbing the lower lip still would start pain in the middle branch area. I injected the mental foramen, producing analgesia of the lower lip, and pain could no longer be started by rubbing the lip. What is Dr. Harris' opinion concerning the rôle of previous peripheral operations in making the alcohol injections less efficacious? French observers, particularly Sicard, have claimed that alcohol injections are less successful in cases in which nerve resections have been made. I have sometimes had trouble on account of the foramina having been plugged with amalgam, screws, or other foreign bodies, and even after deep nerve injections it was necessary to remove these foreign bodies to get relief.

Dr. C. D. Camp, Ann Arbor, Mich: Dr. Harris is the pioneer of the injection of the gasserian ganglion with alcohol through the foramen ovale. I read Dr. Harris' first paper shortly after it was published and, after some experiments on a cadaver, I concluded that the operation was an entirely feasible one. I have made three successful injections of the ganglion, using the Harris technic. The details of these cases I published in the *Medical Record*, July 20, 1914. In all of these cases the neuralgia was relieved. My experience differs from that of Dr. Harris with respect to the sense of taste. In all of my cases the sense of taste was preserved in the anterior two-thirds of the tongue, although there was complete analgesia in this region. There were no cases of keratitis in this series. Of course, the usual precautions were taken to prevent any foreign matter from irritating the cornea. The injection of the gasserian ganglion is quite a different proposition from the injection of the peripheral divisions of the fifth cranial nerve, but it is hoped that the destruction of the ganglion will not be followed by recurrence of the neuralgia.

Dr. George A. Moleen, Denver: I have seen most of the neuralgias in the clinics and in the practices of other physicians. I find in about 1,500 case records not over a half dozen trifacial neuralgias. Among those there are probably four or five of what might be termed postmalarial, supraorbital neuralgias that were distinctly amenable to appropriate treatment. I question whether or not the altitude may have something to do with determining the susceptibility of the trifacial nerve. I do not believe that in the entire Rocky Mountain region we have anything like the percentage of cases reported in any one neurologic clinic at sea level. Does Dr. Harris confine his injections, even in the milder cases, to alcohol, or has he, in the case of specific neuralgia, found any relief from the use of salt solution? We see in Colorado quite a number of peripheral facial paralyses, and I have noted, even with careful testing, that taste is not only abolished in the anterior two-thirds of the tongue on the same side in these cases, but also on both sides. Whether that is due to disturbance in the attention, faulty technic, or what not, I am not able to say, but it may account for the loss of taste discovered after these injections. I am quite certain that taste was lost on both sides, having been prompted to test the other side after having found it absent in the ipsolateral side.

Dr. Wilfred Harris, London, England: Answering Dr. Ball, who referred to injection of the seventh nerve with alcohol, I would say that this was the first use to which injection of this agent was put originally by Schlösser in order to relieve the painless form of facial spasm. These unilateral facial spasms are not common, and they are rarely so severe as to cause total paralysis of the face. As to using alcohol in these cases, I have injected this agent a few times, but not recently. I was interested in the first case cited by Dr. Ball, in which in injecting the ganglion through the foramen ovale, he produced facial paralysis and collapse. I have recently seen a somewhat similar condition in a hospital patient aged 60. Total anesthesia developed over the whole fifth nerve area. The woman began to slip over and fall toward me as I was working on the left side, she had nystagmus toward the opposite side, and her face became paralyzed on the side on which I was working. For a moment I thought, Have I possibly injected the seventh nerve peripherally? It was quite plain, however, that I had not done that. When I had finished I investigated more carefully. There was more or less facial palsy, and, a point Dr. Ball did not refer to, she had total nerve deafness as well as this facial palsy. She had nystagmus to the opposite side. In two days there was no trace of the trouble which had developed so acutely and which alarmed me much for a moment. I have never seen any such severe hemorrhage as occurred in the second case mentioned by Dr. Ball, but have read records of severe hemorrhages having occurred; and I am certain that the moment any such sign of hematoma develops the only thing to do is to withdraw the needle and hold on tight, using firm pressure for ten minutes. If this is done the hemorrhage will cease. Dr. Bassoe referred to injection in postherpetic neuralgia. I do not believe this is advisable treatment in those cases. The lesion is proximal to the point where the injection can be placed. Theoretically it cannot be defended, and in practice no good results obtained; on the contrary the patient is made worse. The majority of persons have had that experience in this trouble, and it has been certainly my experience with alcohol injections in those cases. Dr. Bassoe says his patient recovered. Some of these patients do recover spontaneously. I do not find that scars make any difference in the result in peripheral operations, if they do not interfere with getting the needle in the right place. Dr. Cramp referred to anesthesia of the drum membrane. That is a striking symptom. You can touch the tympanic membrane without the patient flinching or objecting, but there is not complete anesthesia because several nerves supply that part. The question as to preservation of taste will, I think, never be settled, but there is no getting away from the results. In about seventy instances I have seen total loss of taste in two-thirds of the tongue on the same side on which the patient still recognized taste acutely on the opposite side; but now and again one comes across a case in which taste does remain unimpaired on the same side, in spite of anesthesia to pain and touch.

THE RELATION OF PHYSICAL THERAPY TO THE HOSPITAL PATIENT FROM THE POINT OF VIEW OF THE INTERNIST *

WALTER L. BIERRING, M.D.
DES MOINES, IOWA

The purpose of this paper is to emphasize the rôle of physical therapy in its relation to patients admitted into a general hospital.

It seems proper at this time to indicate wherein the general hospital more completely realizes what hospitals are expected to accomplish. In its physical plant, well-organized medical, and efficient nursing staff, it should represent in highest efficiency the essential coordinating factors for conserving the patient's best welfare.

The primary function of the hospital is to cure disease, and to relieve suffering. A hospital which fails to cure a patient, who is theoretically curable, fails to that extent to perform its proper function.

The subject of hospital care and treatment is the patient and not the disease, so that the hospital should include in its physical equipment and in its medical organization the means of dealing with any pathologic condition, or complication of disease, expected or unexpected, in any individual patient.

The general hospital exemplifies the spirit of modern medicine; consequently, the hospital patient fares best in it, and it is better for the education of the medical student and medical intern to be in the atmosphere of a general hospital.

It may be further said that the establishment of real general hospitals will quicken medical research and investigation, will place adequately equipped laboratories at the disposal of clinicians generally, will facilitate sound medical teaching, will insure a more adequate training of nurses, and will tend to standardize the general efficiency of hospital work.

No hospital can give satisfactory service in all emergencies which does not represent in its clinical and laboratory organization, and in its therapeutic equipment, all that modern medicine is able to contribute of technical skill and expert knowledge to the investigation and treatment of disease.

Physical therapeutic methods have now become an essential part of the treatment of patients in any general hospital. There can be no sympathy with the employment of physical therapy purely for the psychic effect on the patient, for when we consider physical therapy, we are not thinking in terms of psychology, because for such purposes the ingenious physician will find or indicate his own medium.

There must be a definite purpose in the use of all physical agents, as in the application of any other therapeutic procedure.

It is of particular interest to note that the average patient admitted to the general hospital presents a distinct type, in so far as he or she is often in the terminal stage of a vicious cycle (of a nutritive disturbance), whether it be an example of cardiovascular renal disorder, of chronic nephritis, of diabetes, visceroptosis or neurasthenia, it seems so often but an expression of a chronic nutritional disorder. This means usually that an attempt must be made to improve nutrition and to reestablish function, and it will tax the best efforts often to bring about a circulatory, nutritive, or psychical balance, so that even though a cure may not be possible, subsequent living will be more comfortable.

It is but rarely in this class of patients that a special surgical procedure, or definite medical treatment, is the essential requirement; as a rule a more prolonged stay in the hospital is necessary, and this permits a better cooperation of diet regulation and other forms of therapeutic procedure with physical therapy so as to promise the greatest degree of improvement.

It is not the purpose of this paper to consider in detail the different physical methods of treatment, and in fact only a very small proportion of patients coming into the hospital will require the employment of more than one or two, yet it is highly necessary that hospitals should be so equipped as to be able to respond to the demands that any condition may require. The best expressions of physical therapy are not always the most elaborate and costly, and often quite as valuable work can be done with improvised apparatus, accompanied by good sense.

HYDROTHERAPY

Man from his advent has daily experienced the beneficent action of water. As symbolism has characterized all primitive mental expression, so it has been

---

* Read before the Section on Hospitals at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

but natural that man used water not merely when ministering to his bodily cleanliness, but also as an effort to convey ideas of moral purification. In this way hydrotherapy developed under sacred auspices, and the use of water as a healing agent acquired the dignity of a religious ceremony. Certain waters in the old world gained more or less of a reputation for special efficacy, and to the testimonials of their wonderful cures eminent physicians have at times added their endorsement.

Aside from the mysticism that has enshrouded water as a therapeutic agent, it has always been regarded as a most valuable adjunct in the treatment of various diseased conditions.

There has been a common error to restrict the term "hydrotherapy" to the remedial use of cold water alone, when it should include the application of water in any form, from the solid and fluid to vapor; from ice to steam, internally and externally; again hot water is as important a hydriatic agent as is cold water.

The mineral constituents of water do not often add to the effects produced, since the latter are often the result of the judicious adaptation of the mechanical and thermic influence of water alone.

It is needless to emphasize that every hospital should afford ample material for the thorough mastery of the Brand bath in the treatment of typhoid fever.

The benefit of the Brand bath is not confined to the reduction of temperature alone, and the idea that high temperature is the chief determining cause of fatality in typhoid fever must be abandoned, for it seems justifiable that the failure of heart power is less an effect of high temperature than of other concomitant conditions. The lessened perspiration, the renal disorders, disturbed sensorium and digestive disturbances are all favorably influenced by the Brand bath when properly applied.

In all the pyrexias of infants and young children the warm bath and pack is an equally potent means for reducing temperature, besides assuaging pain and relieving nervous debility, without materially interfering with any of the functions. For this purpose there is no remedial agent which can compare with a full bath of 98 degrees, reduced perhaps to 90 degrees for eight to ten minutes, combined with gentle friction.

Hot baths constitute an important factor in the treatment of every case of cerebrospinal fever, in exerting a modifying influence on symptoms and the course of the disease. In accordance with the contributions of Rosenow, the *Streptococcus rheumaticus* is favored in its development by cold surroundings and inhibited by warm, so that the application of the warm pack to affected joints in acute rheumatic fever not only relieves pain, but may likewise have an inhibitive action on the infective process.

The prolonged warm bath has attained a special place in dermatologic conditions; promoted by Hebra it has proved valuable in extensive burns, while in skin affections like pemphigus foliaceus, it tends to relieve pain, mitigates the fever and restores sleep and digestive functions.

The continuous bath is likewise useful in different forms of cerebral irritability, such as acute delirum and mania; in the bedsores of tabes, myelitis, cerebral and spinal tumor, the advantages of the water-bed will be best appreciated by those who have treated such cases without it.

The value of the warm bath, hot pack and different forms of sweating procedures in the different types of nephritis is generally recognized. In recent years the significance of albuminuria as a manifestation in nephritis has lost some of its import, while more emphasis is being placed on renal insufficiency in the elimination of nitrogen, chlorids and water. The result of this more practical and broader view has been a more intelligent regulation of the hygienic environment of the patient and his diet.

Directly connected with the application of hot water is the hot-air bath in enhancing the reactive capacity of patients subjected to hydriatic procedures.

Experimental and clinical observation reveal a pronounced and often considerable increase in diuresis and elimination of all products of tissue change on the bath days. There is often a decided relief from retention symptoms, the hypertension is modified, headache disappears and gradually the nutritive as well as the circulatory balance can be reestablished.

There is often no more effective measure of relieving the distressing headache of hypertension than the evening hot foot-bath.

We all know that dry heat applied as sand bags, sacks of hot salt and hot bran affords decided relief to various forms of neuralgia, myalgia or other localized pain.

Dry heat of high temperature is not employed for any considerable number of purposes, but a lesser degree of heat is employed in what is termed the baking process used for neuritis, myalgia and the different forms of chronic arthritis. The only drawback to its more general use has been the expense of the necessary apparatus, but it is to be hoped that before long more simple equipment can be obtained at a lesser outlay.

MASSAGE AND EXERCISES: MECHANOTHERAPY

It is only within the past thirty years that massage has been employed to any great extent in this country, and it is largely due to Dr. S. Weir Mitchell in his employment of it in his famous rest cure, that it has begun to receive serious consideration.

At the present time it is a well-recognized therapeutic measure, and has proved valuable not only in combating certain nutritional disorders, but also in surgical conditions. When employed in connection with systematic exercise it is of value in various conditions coming properly in the field of the orthopedist. A practical knowledge of anatomy and physiology, besides the necessary manipulative skill, is highly essential in its application, so that it requires a proper training of the nursing staff or employment of special masseurs by the hospital to obtain the best results.

Massage exercises certain physiologic effects, and on these its application in disease conditions is based. It has a favorable influence on the circulatory apparatus in promoting increased activity, reflex stimulation of the heart, and slight temporary rise of blood-pressure, and aids respiration by lengthening the excursions of the diaphragm.

There is probably no branch of medicine which offers so large a field to massage, or in which more satisfactory results have been obtained, than in the treatment of nervous disorders. Its usefulness may be considered under two heads, one being as a general tonic and stimulant to muscular tissue and the other as a sedative agent.

In the particular individual often referred to as the Stiller type, or habitus asthenicus, in which visceroptosis or splanchnoptosis is the distinctive feature, systematic massage seems often the only remedial measure that promises any relief. A combination of general with abdominal massage exerts a favorable influence on the general state of myasthenia that exists, and thus relieves the distressing abdominal symptoms which form such a prominent feature of this condition.

Various conditions are specially responsive to a judicious combination of massage and gymnastic exercises; among these should be mentioned the different occupation neuroses, and conditions presenting atrophy or muscular spasm occurring in cerebral lesions affecting the motor areas or its cerebral and spinal tracts.

Massage constitutes an important part of the palliative treatment of tabes, and the reeducational movements in ataxia as formulated by Fraenkel have been employed with gratifying success.

In this connection reference should be made to the use of carbonated baths in heart disease, as represented by the Nauheim baths, combined with the passive resistance exercises of the Schott method, or the graduated exercises of Oertel.

In discussing the value of baths and exercise on heart diseases, consideration must be given to what is expected of the treatment. In all methods of cardiac therapeutics, there are three main purposes, namely, those which spare and soothe the heart, those which solicit or revive it and those which repair it.

Rest is an example of the first, digitalis of the second, while baths and exercises belong to the rebuilding kind, and if our demands here overtax the remnant of cardiac capacity, we shall exhaust the heart or overthrow it. We are aiming to make new heart muscle, and to appreciate this possibility in all cases is a task of no little difficulty, so that the application of the Nauheim method should always be made with careful discrimination.

In many disease conditions a systematic combination of several forms of physical therapy is necessary to promote the best result.

There are other forms of physical agents as represented by light, electricity, radio-active substances, and the Roentgen ray, which are effective in certain conditions, yet many of the virtues ascribed to them are more or less speculative, and a complete equipment in all these lines in a general hospital in the light of present knowledge is not absolutely required.

Physical therapy should always be regarded as an adjunct in the therapeutic measures for the relief of disease conditions, and therein lies its main argument for a close relation with a general hospital, since here only is afforded a proper cooperation of a well-organized staff to promote the best results.

The establishment of special institutes for physical therapy is unfortunate, since it offers the same objection as the specialist in relation to general medicine, in that it tends to a restricted point of view as to disease conditions, and often leads to an exaggerated conception of the therapeutic virtues of some particular form of physical therapy.

There can be no question that as physical therapy loses its proper relation to the general hospital, it favors the establishment of separate sects, of pathies based on the use of one or other physical means of therapy. These are distinctly undesirable, not alone in the interest of scientific medicine, but also for the welfare of the unfortunate patient.

Equitable Building.

SIX YEARS' EXPERIENCES AT THE MEDICOMECHANICAL DEPARTMENT OF THE MASSACHUSETTS GENERAL HOSPITAL *

C. HERMANN BUCHOLZ, M.D.
BOSTON

The medicomechanical department of the Massachusetts General Hospital was founded ten years ago by the gift of sixty-three Zander apparatus from a benevolent lady. For the first three years it was in charge of Dr. Max Boehm, now in Berlin. For the last six years the department has been conducted by me. The accompanying tabulation gives an idea of the number of patients treated and the amount of work done during these six years. The steady growth of the number of new patients shows how the department has become more and more an important factor of the hospital; particularly the surgical and medical departments use it to a considerable and steadily growing extent. These numbers would still be larger, if the nerve room had not enlarged its own department for massage and exercise.

CASES TREATED AT THE MEDICOMECHANICAL DEPARTMENT FROM APRIL, 1908, TO MARCH, 1914

Fracture of humerus, scapula, clavicle	182
Fracture of elbow	227
Fracture of forearm and hand	161
Colles fracture	305
Fracture of spine, ribs, pelvis	19
Fracture of thigh and patella	100
Fracture of leg, ankle, foot	226
Fracture with delayed union	38
Total fracture	1,258
Dislocations	128
Stiff joints (except fingers)	180
Stiff hands and fingers	174
Arthroplasties	9
Contractures and deformities	118
Contusions and sprains	166
Subdeltoid bursitis, a. o. bursitis	331
Myositis	12
Infectious arthritis	370
Septic hand	212
Gonorrheic arthritis	86
Villous arthritis and arthritis deformans	120
Total arthritis	788
Sacro-iliac and back strain	208
Weak back and faulty posture	197
Lateral curvature	276
Total back cases	681
Feet	265
Neurosis	94
Hemiplegia	112
Infantile paralysis	131
Other paralysis	110
Other nerve diseases	100
Total nerve diseases	547
Diseases of the circulatory system	33
Diseases of the respiratory system	16
Diseases of the digestive system	38
Other internal diseases, including debility and convalescence	60
Total internal diseases	147
Miscellaneous	100
Grand total	4,904

The medicomechanical department consists of a large room with the Zander apparatus, a balcony for the special corrective work, two small rooms for massage and manual exercise as well as baking, and an office for examination and manual treatment. As to the distribution of room, the apparatus part of the work is markedly favored, a condition which is not in accordance with the needs of a general hospital such as ours, and, indeed, in the plans for a new building much more room has been provided for the manual work. Since I frequently meet in practice erroneous ideas of patients as well as of physicians in regard to the value of apparatus, I shall explain the comparative value of manual and apparatus treatment. A differentiation as to the massage and exercise and as to the local and the general effect of the treatment must be made. As to the massage, it cannot be doubted that the manual work holds the first place. Mechanical massage can be only a very poor substitute, except vibration and, to a certain extent, tapotement. The other manipulations, effleurage, kneading and friction, demand a thorough training and a full understanding of what we have under our fingers. Massage properly done requires a good deal of brainwork.

---

* Read before the Section on Hospitals at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

Machines are a good compensation for the exercise in many ways, but they are by no means a full substitute, nor are they, in my opinion, indispensable in obtaining the local effect. Most of our surgical and orthopedic patients have to begin their treatment with the manual methods of passive and active, assistive and resistive exercise, and become ready for apparatus treatment only when they have gathered sufficient strength to control the apparatus. In those cases the greatest value of the apparatus is that they spare the time of our assistants. On many days sixty, eighty and even up to 100 patients are to be treated in from three to four hours. The average time of one treatment being considered as twenty minutes, which is rather short, we would need at least seven or eight trained assistants, a heavy burden for a charity hospital. The apparatus do not necessarily require a trained attendant, though of course an intelligent and expert supervision is desirable.

For certain local effects apparatus are of particular value, as in furnishing symmetrical stimulations in many paralytic and other nervous conditions. And the so-called promotive exercises in which the moving power is furnished by a turning wheel, a pendulum or an electric motor are of extreme value and cannot be very well carried out by manual exercise.

For the general effect on the circulatory, respiratory, digestive and nervous systems and on the general metabolism the apparatus are of great value and have a decided preference over the manual treatment. It should not be said that we necessarily depend on apparatus, and patients living too far or being too sick to go to the outpatient department could not have proper exercise treatment. Nor would I like to give you the impression that we can do everything with the apparatus. Also in this class of cases the manual exercise has its definite place and cannot be missed.

In close connection with the medicomechanical department is a hydrotherapeutic department in my charge. These departments cooperate freely in that many patients get both hydrotherapeutic application and treatment with Zander apparatus on the same day or on alternating days. Of Bier's methods only the baking is used to a large extent. Bier's congestion by a rubber bandage has been of much value in treating ward patients, but is a method far too difficult of application and too dangerous to be satisfactory in outpatient cases.

The various methods of electrical treatment which represent another branch of physical therapeutics are distributed among the Roentgen-ray and nerve departments. If necessary patients are treated at the medicomechanical and any one of the other departments on the same or alternating days.

The Zander room is a subsidary department in that outpatients have to belong primarily to one of the regular clinics and are sent to the Zander room for treatment. Thus the medical man, the surgeon, the orthopedist or the nerve man makes the indication as to the treatment in the medicomechanical or hydrotherapeutic department. He also may suggest the form of treatment which he considers best, or he may leave this to the surgeon in charge. But it must be insisted that the director of such a department has absolutely free hand to decide as to the form and amount of treatment, as well as to refuse treatment if he considers it not a suitable case. Frequent consultations with the other departments favor a mutual understanding in this direction.

At present the surgeon in charge of the medicomechanical department is holding a position as orthopedic surgeon to the outpatients, while his assistant holds a place as assistant at the same department. This personal union of the orthopedic department and the department for physical therapeutics is in my opinion of greatest value not only to the orthopedic cases, but also for the whole hospital, and becomes more and more so with the growing field of orthopedic work. The value of this union is also acknowledged by the university in the appointment of the surgeon in charge as assistant in orthopedics and physical therapeutics at the Harvard Graduate School of Medicine. We meet the same union in many German university clinics and hospitals as well as in the field of the most important orthopedic journals abroad.

TREATMENT OF STIFF JOINTS BY MASSAGE AND EXERCISE

Before we consider the various lesions which we have to treat, a few words should be said about the treatment of stiff joints in general by massage and exercise. Massage has the purpose to stimulate the circulation and nutrition of the affected limb, to hasten the absorption of edema and waste matters about the joints, within the muscles, tendon-sheaths, bursae, etc., to loosen adhesions between the various layers, to favor the function of the skin. Most useful for these purposes are the long stroking over the muscles, the kneading and pressing of the fleshy parts and the friction of the smaller parts. With any irritation or tenderness still present the friction should be done with a great deal of ease and should not cause any pain. The kneading of the muscles should generally cause an agreeable feeling of relief; it is particularly indicated after the exercises.

Far more important than the massage is the exercise. To be brief, exercise consists of passive and active movement in its infinite varieties. In the treatment of stiff joints the active movement is of much greater value than the passive. This seems a plain, simple statement, hardly worth mentioning, but daily experience shows me that this great principle of functional therapy is not sufficiently understood. Many patients who are sent to the department for the treatment of stiff joints following fractures or other lesions bring a note from their surgeon prescribing passive exercise. Furthermore, we sometimes have the following experience: A patient with a stiff joint being treated at our department reports to the surgical department. The surgeon, not satisfied with the speed of the progress, gives a few more or less forced passive movements which in almost every case cause an irritation sufficient to interrupt the so far steady progress. Occasionally I have had a chance to prove this observation by exact measurements. Also among so-called trained masseurs the passive movement enjoys a better reputation in the treatment of stiff joints than it deserves. About every one of them who has come to work with us has had to learn this anew.

A joint is not a door hinge, but a complicated and extremely sensitive living mechanism. Its proper function depends on many conditions, inside and outside. A rational therapy should be preceded by a thorough examination clinically and by the Roentgen ray. The examination should find out the condition of the articular cartilage, the thickening of the capsule, any relaxation or retraction of ligaments, adhesions of tendons and tendon sheaths, retraction of the muscles and their perimysium and everything else which might come in question in the individual case. On this examination depends not only the prognosis, but also to some extent the therapy, although the functional principle holds good for all. A type of cases very frequently seen at our department is that which I have described as the traumatic hand, a change likely to come on after injuries of any part of the arm and shoulder. The clinical features of the traumatic hand are, to be brief, marked thickening and tightening of the soft tissues of the fingers, especially around the interphalangeal joints, and in the roentgenogram a marked atrophy of the bony structures. The function of such a hand is always more or less restricted, often the hand is very badly crippled. It is evident that the limitation of function is caused by a severe alteration of the tissues which may be most precisely termed as lack of elasticity. Whether or not normal conditions will be restricted depends on the amount of alteration which has taken place, and on the recuperative power of the patient's tissues in general. Our therapy must do whatever possible to aid Nature's attempt in restoring proper conditions. First of all we should try to improve the circulation and by that the whole nutrition and metabolism of the limb; our best means are baking, massage and especially functional stimulation. The passive exercise if done alone neglects this most valuable factor. It is liable to cause irritation and inflammation, resulting perhaps increased stiffness, as we have frequently seen.

One might maintain that such active movement may be done by the patient himself and he would not need any treatment for this purpose. This is perfectly true, and I think it is much better to leave such a patient alone than to push him through the misery of a poorly managed treatment which might do him more harm than good. Nature is not likely to cause so much damage as a masseur's hand might do, if it is not guided by a thorough understanding of physiologic and pathologic laws. But experience shows that the proper application of assistive and resistive exercise with all the wise suggestions of the Swedish system as to measuring and localizing the active movement can help the patient along in a marvelous way.

Another point of importance in our work is the educative effect as well as the influence on the mind of the patient. I have found many times what an encouraging and stimulating effect it has when you teach your patients how to do things which their crippled joints have not accomplished before.

FRACTURES AND DISLOCATIONS

Relatively the greatest number of our cases consists of fractures. Treatment of fractures is composed of two parts, the proper healing of the bones and the restoration of the function, or, as we may briefly say, the anatomic and the functional parts. In the clinical lectures as well as in most text-books the functional side of the question is considerably neglected. The impression which I have from my experiences may be somewhat pessimistic, since I usually see the worst cases, but even so, I venture to say that much fault will be seen in the end-result of fractures, unless the functional treatment meets that consideration which it deserves.

This is particularly true of the fractures involving or near to joints and it is in this great group of cases that the functional treatment of Lucas-Championnière has had its best results. The idea of this great surgeon has been to follow Nature's example. Now what do we do with a fractured limb? We put it in a plaster cast or on a splint for at least that amount of time which is generally required for the union of the bones and often much longer. Then when we remove the splints we see in a great many cases the involved joint stiff; often joints in the neighborhood and not rarely all joints of that extremity more or less affected, the muscles and all the tissues including the bones much atrophied, the limb useless. A damage is seen which at least frequently is not the direct result of the injury, but is more or less brought about by the treatment. When such a case is referred from the surgical to the medicomechanical department for after-treatment the surgeon should be conscious that he carries the responsibility for the definite outcome.

The separation of the anatomic and the functional part has its practical value, but it is liable to bring up a certain danger. Kocher's word that the function of the limb depends on the good position of the bones is right in only one sense and only to a certain degree. A bad position is liable to disturb the function, but it is not the only, and frequently it is not the main cause of stiffness. On the other hand, that good position may be accompanied by a poor function can be proved by many examples from our records. It is not the place here to discuss the possibilities of carrying out the functional treatment of fresh fractures in a general way. Its principles are sound, though we do not mean to adopt it so far as to leave off fixation even in fractures of the diaphyses. It is often the exaggeration of an otherwise rational treatment which has delayed its general use.

Among the 1,258 fractures there are thirty-eight with delayed union. Many of these patients had been treated a long time before they were sent to our department. In some of them the conditions urged operative interference, but in the majority the treatment with massage and exercise has proved very satisfactory in that bony union was obtained during a reasonable time, while at the same time the function was more or less restored. Reports of a number of these cases were published in 1909. Of the later cases one deserves particular notice:

A man aged 25 years, with a 9-month-old compound fracture of the humerus between the middle and lower one-third. The fragments were very loose and there was a sinus over the point of the fracture. All joints of the left arm and hand were greatly limited in motion. When the patient was referred to me for consultation as to the advisability of an operation I hesitated because of the sinus and because I was afraid of further delay of the functional cure by fixation after the operation. I therefore asked to refer the patient to the medicomechanical department where he was treated by massage and exercise. After four to five weeks the fragments were practically solid and the sinus was closed. The hand and fingers and to some extent the shoulders had been very much improved in motion and only the elbow did not make good progress. The patient has been under treatment for a long time and his arm has been strong and useful except for the elbow, which showed only about 30 degrees of motion. Had that form of treatment been started seven or eight months earlier, we might have obtained a full functional cure within a much shorter time.

The functional principles in the treatment of dislocations do not differ very much from those of fractures. In the uncomplicated cases functional treatment may be started very early. There is no reason to hold such joints in casts or splints for four or six weeks as we see it done so frequently.

A few words need to be said about the dislocation of the elbow. In these cases there is a certain danger of ossification along the tendon of the brachial muscle. Since the injured periosteum is readily subject of extravagant production of bone tissue, any irritation must be carefully avoided. This is also necessary in the treatment of fractures near joints where an abundant formation of callus may do much harm.

STIFF JOINTS

Under the head of stiff joints are classified joints affected by operations, wounds, burns, etc. They do not need any separate discussion, but a word may be said about the time when it is wise, in my opinion, to begin the after-treatment in cases of suture of tendons of the hand. Most of those cases had been splinted for four to six weeks after the operation. When they came to us the hand was stiff and often required a treatment of many months to make it limber again. It seems to me that ten or twelve days after the operation gentle exercise can safely be started provided the wound is well healed.

The same mistake of too long a fixation is invariably made after the radical operation of Dupuytren's contracture. Splinting such a case for four or five weeks, as I have frequently seen, without giving the patient at least a chance to move his fingers is dangerous and has led in some of our cases to a prolonged stiffness, some having never well recovered. This is all the more dangerous, because the patients are usually of an advanced age. In a case like that I apply a splint for two weeks constantly and for another month over night and begin with gentle active and passive movements on the third or fourth day after the operation.

The same experience I have had with tendon transplantations. Several patients came for after-treatment as much as three and four months after the operation. During that time the transplanted tendon had become firmly embedded in scar tissue and the hope of obtaining any active function of it was entirely gone. There is no reason why the exercise treatment in such a case should not be started three or four weeks after the operation at a time when the tendon is still movable. Then we need the functional stimulus for the formation of a new tendon sheath which is necessary for the definite function. About the other affections in this column everything necessary for the understanding of the treatment is included in the previous paragraphs and in that on arthritis.

ARTHRITIS

The value of physical therapy in the treatment of the various forms of arthritis is generally recognized. We may distinguish an effect as to the actual cure of the disease and as to the restoration of the function of the affected joints. In regard to the infectious arthritis in its various manifestations we maintain the modern point of view in that it is our first duty to study each case in order to find the focus of the disease. We know that with the elimination of such a focus the case may clear up according to the amount of pathologic changes. The place of physical therapy, therefore, in regard to this indication must be a secondary one, but nevertheless its tonic effect is frequently of great value in strengthening the patient's lowered resistance against the known or unknown enemy.

With any acute inflammation still present the affected joints must be kept quiet, but gentle massage applied to the muscles centralward acts often decidedly pain lessening and relieving. Baking is not advisable in the acute stage; it may irritate the joint and aggravate inflammation. Bier's congestion treatment has given us sometimes excellent results. We have had a number of cases with infectious arthritis of the gonorrheic type and others in which the patient had not slept for several nights because of the intense pain and the application of the elastic bandage stopped the pain almost immediately. The technic of this method is perfectly simple, but in my experience, frequently misunderstood.

The most difficult question perhaps is how soon to begin with the exercise treatment in order to restore the limited function. Doubtless many cases clear up without any particular after-treatment, but there are others, probably of the fibrinous type, in which a marked degree of stiffness may remain, when fixation is sustained for too long a time, and sufficiently gentle exercise treatment can certainly shorten the time of disabling very much. When to begin in such cases must depend on the experience of the physician and on his technic to carry out such a treatment. It needs a well-trained hand to treat such joints effectively and carefully at the same time.

The treatment of arthritis deformans in its various manifestations as hypertrophic and atrophic arthritis is a difficult and discouraging chapter of medical therapy, but of all that we can do for such patients the physical therapy occupies a prominent place. Hydrotherapy, thermotherapy and balneotherapy, massage and gentle exercise have given us at times encouraging results although we usually get our patients with anatomic alterations so far advanced that anything like a cure is out of the question. We have had quite a number of patients at the Zander department who showed a distinct improvement in mobility and strength. Even in old neglected cases it is worth while to make a trial, provided the patient can furnish the necessary energy and endurance.

BACK CASES

With the change which the explanation of sciatica and lumbago has undergone in recent years, following the well-known investigation of Goldthwait and others, the treatment of these widespread conditions has become more rational than before. A better understanding has led to a clearer application of an etiologic therapy, instead of the purely symptomatic treatment which heretofore has largely been used. A revolution in ideas like that, however, often causes neglect of methods which have deserved their merits from experience. This has been the case in our clinic in regard to the application of physical therapy, especially massage and exercise. The number of cases of this type referred to our department is very small in relation to the large material treated at the outpatient department. Such neglect is very much to be regretted, because appropriate application of physical therapy has sometimes given us very satisfactory results even in old cases in which all orthopedic measures have in vain been exhausted. However, we recognize the difficulty of thoroughly carrying out this treatment in outpatients. These results are not surprising in the light of the modern theories. We have learned that in many cases of sciatica and lumbago the pain is referred from lesions of the sacro-iliac, lumbar and lumbosacral regions which may be intra-articular or extra-articular. When we consider the effect of rational physical therapy in many other articular or periarticular affections elsewhere in the body, we cannot be surprised to meet similar effects in the treatment of this class of cases.

Next are to be considered the cases with round shoulders, faulty posture and lateral curvature. It might be of interest to report briefly the development which the treatment of these cases has had in our clinic during the last six years. When I took charge of the department it had been the custom to treat these patients almost solely with Zander apparatus. Very soon I added to this form of treatment special exercises, which were directed by me and given by my assistant. Since the number of patients steadily increased, an extra class was formed under a teacher trained in orthopedic corrective gymnastics. This class has now a very large frequency. One of the Boston Normal Schools for physical education furnishes us with volunteer assistants. The idea of the treatment is the individual training and education. Zander apparatus are in use only in addition to the individual exercise. A systematic record as to the frequency of visits, weight, height and the kinds of exercises used, and in the most severe cases, stereoscopic photographs taken after the manner described by Osgood and myself form a useful material for scientific observation. The exercises are all given with the patients' back exposed, thus allowing a good control of their various movements and postures.

FOOT CASES

Of the 265 foot cases at least 95 per cent. belong to the type of weak pronated feet; in about 20 per cent. a distinct peroneal spasm was present. Not counted in this rubric are the traumatic flat feet following fractures or sprains, or those foot troubles which are caused by infectious arthritis, or the paralytic deformities of the foot. If all those cases were included the total number would be at least twice as large. As to the indication of exercise treatment in the typical flat foot, I cannot share that enthusiasm which is shown by some authors. I do not believe that exercise treatment is ever able to cure a flat foot, but it has its definite place as an educative factor. It should be carried out as individual training in a similar way as in the treatment of lateral curvature. The patient should learn how to use his feet properly. If you accomplish so much, you can materially compensate and assist the usual orthopedic treatment.

Pain is not always a contra-indication for exercise treatment. We have had a number of patients with painful feet who for some reason had no other treatment besides and were relieved of their pain by massage and exercise while the strength and balance of their feet was at the same time improved. Occasionally we have tested the comparative strength of the adductors and abductors with Osgood's apparatus and have found a definite steady gain in favor of the adductors.

In peroneal spasm massage and exercise alone is able to relieve the condition, but I prefer to add strappings or casts and later plates to the exercise treatment.

NERVE CASES

For a long time physical therapy has been the faithful servant of neurology, and countless are the indications for its various branches. There is no need of discussing the preference of the one over the other, whether massage is better than electricity in a case of paralysis; all have their fields and their limits. To begin with neurosis, there is hardly any field in medicine in which physical therapy can celebrate such great triumphs in the one case and can be so disappointing in the other, though the indications may seem to be just the same. It is better to make a careful prognosis and not to use too many kinds of treatment at once in order to be able to change from one form to another when it seems wise. I begin, as a rule, with general massage to which I add exercise with or without apparatus, hydrotherapeutic applications, high frequency, static electricity, etc.

General massage has given us excellent results in cases of severe hysteric convulsions. Two of those cases had been under observation at the hospital for several weeks without showing any improvement. Soon after massage was started a distinct relief could be noticed and the patients were discharged clinically cured within two or three weeks. Exercises on Zander apparatus have not proved so efficient in this particular class of cases, but they are to be recommended in the depressive forms of psychoneurosis. The effect will be still increased if a strong personal influence can be added to the simply mechanical effect of the exercise. In private cases of that type we always welcome the personal assistance of the physician who sent in such a patient. As to a general indication I would like to say that the anemic cases should be handled with particular precautions.

PARALYTIC CONDITIONS

I have already called attention[1] to the various indications of the exercise treatment of paralysis. I have said that we should consider the effect of the treatment on: (1) the primarily affected neurons; (2) those neurons which are in a functional connection with the former, and those which furnish possibilities of substitution for the destroyed parts; (3) the musculature; (4) the joints and the bones; (5) the internal organs and general health, and (6) the mind of the patient.

In many of the paralytic cases apparatus are of great help in addition to manual massage and exercise. Particularly in the one-sided lesions, as hemiplegia, the use of the bilateral exercise apparatus for active and passive movements and especially those for promotive exercises is of a very definite value. To obtain the desired effect, however, it is necessary to control the patient carefully while he is doing this exercise.

---

[1] Bucholz, C. H.: Exercise Treatment of Paralysis, Am. Jour. Orthop. Surg., May, 1912.

A few words need be said in regard to the prognosis of infantile paralysis. The longer we have had a chance to observe patients the more have we become impressed with the possibilities of improvement in cases of long duration. Many of these patients had not noticed any improvement during years before they started systematic exercise treatment, and it has been sometimes surprising to see how much unused power was stored in muscle groups which at the first glance seemed to be extensively paralyzed. With such experiences we have felt a great deal more optimistic in encouraging the patient to undergo a treatment which certainly will require a good deal of patience and persistency.

Exercise treatment on the one side and operative or orthopedic mechanical treatment on the other should not be considered as excluding each other, as I see it not rarely done in practice. To cite a case recently seen of a girl aged 10 who was operated on in another hospital for spastic paraplegia: So far as I could find out Stoffel's operation had been done on the obturator nerves. As her mother said, there had been a distinct improvement during the first few months after the operation, but the child was left to herself without any attempts of after-treatment, and she is worse now than before, probably also with the prognosis made worse. I thoroughly agree with men like Biesalski, Foerster, Lovett and others that, unless such a patient, after either a simple tenotomy or Foerster's or Stoffel's operation, can enjoy a careful after-treatment in the way of educative individual exercise given with the full understanding of the situation, the operation should better be omitted.

Of other nerve lesions not grouped under neurosis and paralysis, we have had to treat spasmodic torticollis, paralysis agitans, multiple sclerosis, and once in a while a case of tabes. In a few cases we have given Frenkel's treatment for locomotor ataxia, but have never had a chance to carry it through a sufficiently long period. The value of Zander exercise in this class of cases is from our experience not very great.

INTERNAL CASES

Last of all I come to speak of the internal medical cases. The statistics presented in the table show a very small percentage of medical cases, compared with surgical, orthopedic and nerve cases, a percentage which is in a striking contrast to German institutions of the same kind. It is very much to be regretted that our medical men do not make a wider use of massage and exercise in the treatment of their cases, although publications of authorities in physical therapeutics as well as our own experiences have been very encouraging. Without going into details of a theoretical discussion, I should like to call your attention to the most important indications.

In cardiac cases exercise is of value in that stage when compensation has been reestablished. The stout persons are better subjects for exercise treatment than the slender anemic ones, and indeed, in the first group of cases we have seen some very suggestive results. One patient of middle age with a severe myocarditis and adipositas recovered during three months of faithful treatment by exercise and diet to his full power and strength, while he lost at the same time 35 pounds in weight. Frequently we combine the exercise treatment with carbon dioxid baths, thus making a combination which is known under the name of Nauheim treatment. The greatest difficulty in prescribing exercise treatment is the exact measure. We know that the effect of massage and exercise on the blood-pressure and on the pulse rate differs within wide limits according to the localization and amount of massage and according to the speed, time and amount of exercise. It was the desire to obtain an exact measurement and dosage that led Zander in planning and constructing his apparatus, and we believe that for cardiac cases the exercise treatment with Zander apparatus or with apparatus of a similar construction is superior to any other form of exercise treatment. Instruction in the use of the apparatus and a certain amount of control and supervision are necessary. In every medical case we have the pulse recorded before and after treatment and, if indicated, once or twice between.

Occasionally we take the blood-pressure before and after treatment, an examination which is done as a rule before and after the Nauheim bath.

Among the affections of the respiratory system the chronic bronchitis, the chronic adhesive pleuritis, and the late postoperative stages of empyema are especially suitable for exercise treatment. We have had some of those patients recover in a very satisfactory way. In one-sided pleuritic lesions asymmetrical exercises play a prominent rôle. In bronchial asthma and emphysema the exercises favoring expiration have proved to be of a decided value.

Of abdominal affections, chronic constipation has long since found particular attention from the point of view of physical therapy. Massage, gymnastics and hydrotherapy have been equally well recommended and all have a very definite value. But I believe that in a condition like this we should not depend on one or the other form of physical treatment without paying sufficient attention to the whole mode of life, the diet, the habits, etc. We must consider that in many of these cases the trouble is perhaps not so much local as constitutional and that an improvement is often far from a real cure, that relapses are apt to follow, unless radical changes in the whole life are made. But keeping these factors in mind, massage and exercise may become of greatest help. A number of Zander apparatus are particularly constructed for abdominal massage. I do not depend on this form of massage, which is in my opinion very much inferior to an intelligent manual kneading of the abdomen. But aside from this, Zander apparatus are very useful in the treatment of chronic constipation. It is necessary to keep up the treatment for a considerable length of time, if possible, to make it a kind of habit. This is particularly true for cases of chronic constipation, connected with adipositas and poor circulation of the internal organs, patients who are sitting most of the time, and do not have enough exercise. In German Zander institutions I have seen many elderly men of that type who came for exercise three times a week the whole year round.

CONCLUSION

I am at the end. It has been my purpose to show you the many and various ways in which a medicomechanical department can serve a large general hospital. It is not enough to have just a number of apparatus running, but the whole mechanism of massage and exercise treatment must be set to work; the treatment must be conducted not as a routine, but with the full understanding of physiologic and pathologic laws. Finally, and this is the most important point, such a department must have the intelligent and wilful support of the whole hospital and all physicians must feel that it is not an institution for the worst type of cases, but that it can show good results only when the indications for which the patients are sent are wise and the previous treatment has been the best.

139 Beacon Street.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. BIERRING AND BUCHOLZ

Dr. A. B. Hirsh, Philadelphia: We send patients to European specialists who use physical remedies, find that the former return much benefited, often cured, and then, uninfluenced by this evidence, still proceed with our old methods of strict drug therapy. On the other hand, certain features of physical treatment have hitherto been resorted to by those without scientific training, or who, if they had any technical knowledge, used modes of exploitation that aroused the antagonism of ethical practitioners. At least four large Philadelphia hospitals have modern hydrotherapic plants, those in charge being properly taught; one of these has a special building for hydrotherapeusis. Some private institutions, also, have introduced this and other newer modalities, all largely due to the wise propaganda of Simon Baruch. One can agree with Dr. Bucholz that, too often, patients are sent us for electrotherapic measures by medical men, who, unfortunately, are not informed on this and kindred measures. For instance, a patient was referred for obesity with the recommendation that vibrassage be applied over the abdomen, when, instead, oscillation and the static wave current were plainly indicated. Another case was that of a badly sprained ankle with much organized inflammatory deposit for which again vibration was insisted on. In these cases only failure could result, the mistaken methods asked for naturally getting the blame. When Dr. William B. Morton in the early eighties came back from Charcot's clinic in Paris where he had seen, through application of a static wheel of the simpler type, the value of even that small machine in nervous disease of plainly organic type, the outcome of his thinking was the modern American high-frequency static apparatus. By means of this a group of physicians over the country, scientific, ethical, are now treating patients referred to them by confrères with results practically unattainable by other methods. Why not apply this plan in each hospital rapidly to awaken the medical public to its possibilities? Some time ago I was asked whether I would care to create such a department in a large hospital in Philadelphia and as many assistants were offered as might be required. My answer was that, until those young graduates could be properly trained in the physical laboratory, the responsibility of treating the variety of cases met there would be too great, because blame for the inevitable mistakes and failures must finally fall on the chief. One must have accurate knowledge of the physics of electricity before apparatus of this high voltage can be correctly applied. When the undergraduate schools realize this fact, more bright students will go into these departments of hospitals and develop their opportunities. We must realize that there is no special field in medicine that must not have added to its armamentarium some phases of the more recent changes in physical treatment. In a few years we shall see the scientific basis of this important part of physical therapy generally recognized.

Dr. C. Hermann Bucholz, Boston: There is a danger in special institutions of physical therapeutics. We have this danger in Germany as well as here, but we must use the help of the man who is more trained in his special line of work. The danger of such special institutions lies in the fact that the man in charge often has cases sent to him with the wrong indication but treats them nevertheless. In our Massachusetts hospital we accept private cases and sometimes they are not properly diagnosed. In a case of chronic urethritis nothing had been done to find the focus. There was a most important indication overlooked in that case. I believe that someone who calls himself a specialist in physical therapy treated that case nevertheless. Meyer of Dresden, one of the greatest German authorities on this subject, says there should not among physicians be a specialist in that line; there should only be a specialty as to the teaching. I thoroughly agree with that. Another point is the training of young physicians in this subject. It is surprising how difficult that is. In our orthopedic department, where about fifteen or twenty physicians are working, there are a lot of young men, who, I am sure, would have the time, but when asked what they would do they could not tell. I tell them they ought to be ashamed to call themselves orthopedic doctors and not know anything about this treatment.

COUNTY HEALTH ORGANIZATION IN THE UNITED STATES*

LOUIS I. DUBLIN, Ph.D.
Statistician, Metropolitan Life Insurance Company
NEW YORK

County health organization in the United States is especially significant in relation to the problems of rural sanitation. The campaigns of the last three decades have resulted in the establishment of active and fairly efficient offices of health in the cities. The concentration of people into the cities and the larger financial resources of these communities have made such service absolutely necessary and possible. In the country, on the other hand, the need for efficient health work is apparently not so imminent, funds are not as available, and as a result, this phase of community work has been slightly developed. With few exceptions, there is very little health control in the rural sections of the United States. It is the purpose of this paper to suggest a system of county health organization which, it is believed, will help to coordinate the several health functions of the state and to lay firmer foundations for the control of rural sanitation.

COMPARATIVE DECLINE IN URBAN AND RURAL MORTALITY (IN REGISTRATION STATES AS CONSTITUTED IN 1900) FROM ALL CAUSES •

	Death Rates per 1,000 of Population						Decline in Death Rate '12 from '00	
	1900	1905	1910	1912	Av'ge '01-'05	Av'ge '05-'09	Actual	Pct.
Registration states ..	17.2	15.9	15.6	14.6	15.9	15.5	2.6	15.1
Rural part of registration states	15.2	14.4	14.7	13.9	14.1	14.2	1.3	8.6
Cities in registration states	18.9	17.1	16.2	14.9	17.4	16.4	4.0	21.2

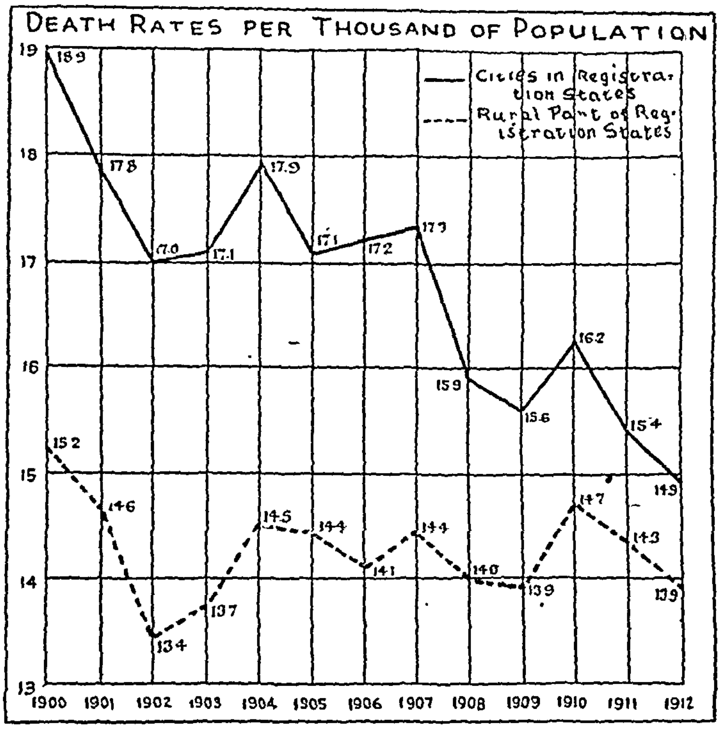
A few statistics will help to a clearer understanding of our subject. The death rate has materially declined. In 1900, it was 17.2 per thousand living in the registration states and in 1912, the rate for the same states was only 14.6, a reduction of 2.6 per thousand, or 15.1 per cent. This decline in mortality, however, was much more pronounced in the cities, where the rate fell 21.2 per cent. in the twelve years under discussion, as against a decline of only 8.6 per cent. in the country districts. These figures (given in the table and chart) do not portray an accidental condition but are descriptive of a pronounced tendency in American mortality in the urban and rural sections of the country.

These death rates, to be sure, do not contain any allowance for the differences in age and sex composition of the population in the rural and urban districts. But the importance of this fact must not be overemphasized, for when the rates are standardized, the changes will be found to be slight and will scarcely affect the comparative rates of decline. There are other and more important elements of population composition than age and sex that should be considered in this connection. The country districts are the homes of the native stock of America, while the cities receive annually hordes of emigrants from Europe, whose mortality is and has been for years much higher than that of our American stock. In like manner, the colored race with its high mortality rate is almost twice as largely represented in the cities of the registration states as in the rural sections. If, therefore, a complete standardization were made of the death-rates presented in the chart we should find that the small advantage still in favor of the rural area in 1912 would be still further reduced if not entirely obliterated.

---

* Read before the Section on Preventive Medicine and Public Health at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

The explanation of the conditions we have just observed in the death rates of the city and the country lies largely, I think, in the differences in the efficiency of their health services. Yet it is in the rural section of the country that more than one half of the people of the United States still live. In 1910, 53.7 per cent. of our population were located in centers with populations under 2,500. In spite of the growth of our cities, America is still, and by necessity must long remain, largely rural in character. It is to the country side, therefore, that we must turn for many years for our most profitable life conservation work. No greater opportunity awaits the American Medical Association and other bodies interested in improving health conditions than to concentrate their energies to this section of the country and to accomplish, if only in a limited manner, what has been done in the American cities.



A comparison of urban and rural mortality (in registration states as constituted in 1900) from all causes.

The key to the solution of the problem of rural hygiene lies in the development of efficient county health organizations in the United States. In most states, the chief unit of local government is the county. There are 2,953 counties in the United States. The typical county is one of about 600 square miles in area with a population of about 20,000 so that every point of it is readily accessible from the county seat. Five-sixths of these counties are rural in character; fully 10 per cent. have no incorporated places and about half contain no towns with as many as 2,500 people. The American county, however, has not as yet been aroused to the fact that it has distinct health functions to perform and that it is the only governmental unit that can properly and efficiently perform such functions. The county health officer should be the most important single factor in conserving American public health, but is practically the weakest link in our entire health system.

To obtain a more intimate view of county health organization in the United States, a questionnaire was sent by the Statistical Bureau of the Metropolitan Life Insurance Company to the executive health officers of all the states. We inquired into the provisions of the state health laws; into the organization of the departments; whether there were any county health officers and whether they were full-time officials; how these men were compensated; the amount of their compensation; and to whom they were responsible. Finally, we inquired into the need for full-time county health officers in the several states.

From our replies it was at once evident that we were concerned with a vital question. The answers were usually complete, clear and to the point and indicated that the subject of our inquiry was in many states the chief concern of the health authorities. The following is a brief summary of our replies:

Health administration is organized on the county plan in thirty-one states out of the forty-one that replied. Yet only five had arranged for full-time county health officers in any of their counties. These were Oregon and Washington, which have one full-time county health officer each; Colorado and Florida, which have two each, and North Carolina which has eleven. In the other states, county health officers are part-time officials, if in existence at all.

In most states the compensation of the county health officers is determined by the local county commissioners or supervisors. In Louisiana, health officers are paid by the police jury of the parish and in Missouri by the county court. The county health officers of Florida are the only ones reported to be on the payroll of the State Board of Health. From all replies, however, we could infer that these health workers received entirely inadequate compensation. In many cases $100 a year was the total salary paid. In one state, fifty-six out of one hundred health officers received less than $200 annually, and this state has recently made considerable progress in its provision for county health service.

The county health officers of more than one-third of the states are responsible to local authorities only. Training in public health and sanitation is not required as a prerequisite for office. There is little, if any, provision for laboratory work. Tenure of office is insecure and the machinery is political rather than scientific.

The one encouraging note in our replies was the almost unanimous demand for full-time county health officers. In this connection the health executive of one of our Eastern states expresses the opinions of almost all of our correspondents when he says: "Yes. We feel the need for full-time county health service every day — all day."

We may, therefore, conclude from these answers to our several questions that full-time county health officers are an absolute necessity in most of our states; that very few such officers exist; that they are insufficiently paid; that responsibility to the centralized authority is lacking, and that county health work is only too often intimately connected with local politics. The present system of county health administration in the United States is inefficient and not conducive to the public welfare. The health officer of a large Western state aptly struck off the whole situation when he said: "The present system is not efficient and never can be."

What then is the solution to the problem presented by county health administration in the United States? It must be obvious that no system will be equally applicable to all the states. A plan that is practicable in New York may very well prove ill adapted because too expensive for a number of our Western or Southern states. Local conditions, both geographical and economic, will largely determine the details of organization. It is agreed, however, that certain fundamental considerations apply equally to all the states which have extensive rural populations, the local control of which is on the county plan. I propose to review briefly some of these requirements.

1. The county health organization of a state must be an integral part of the state health administration and be responsible to it. Public health protection is primarily a state function. The county health officer and the county board, whenever there is one, should, therefore, hold themselves in readiness to enforce orders from the state department. They should, moreover, be subject to removal by the state department for cause. The state, on its part, however, must recognize this dependence of the local organization through state subsidies to help cover the necessary expenditures for county health work.

2. The county health officer must be a full-time official. He must be one whose sole interest is in the community, to the exclusion of private interest, be it his own or that of private individuals or groups. We all know too well how often the part-time health officer who has a private practice to maintain must choose between the performance of public duty and the loss of his practice. This situation should not arise. He should never find it necessary to compete with those whom it is his duty to supervise.

3. The county health officer should be trained in the science of sanitation and public health. Most practicing physicians are not well enough equipped to administer a progressive health office. The protection of the public health, as now conceived, is a science with its own data and formulas. The larger medical schools, such as those at Harvard and at the University of Michigan, for example, have organized special postgraduate courses leading to the degree of Doctor in Public Health. It will be a great day in American public health affairs when medical officers will, as a class, qualify by study in such postgraduate courses.

4. The tenure of office of the health officer should be coextensive with his efficient service. The successful health officer is made, not born. With a proper background of training, every year of added experience makes him a more useful servant of the state. The health officer should, therefore, be assured of a continuous tenure of office. He should in no way be a pawn in the political game. A period of six to eight years has been suggested as a sufficient term. Health officers who have made good should then be considered for reappointment, although the state may reserve the right to dismiss in shorter time those who are incompetent or neglectful of their duties.

In view of these requirements, it should hardly be necessary to point out that county health officers must be reasonably compensated for their services. Surely, if full time is required, the compensation must be sufficient to attract and to keep good men in the service without inflicting hardships on them or their families. It is folly to set high standards and to make them impossible of attainment because of inadequate compensation or uncertainty of tenure. Salaries must be adequate to attract able men and to maintain them in a state of comfort consistent with their important duties.

Permit me to point out more definitely the character of the return that awaits the states on their investment in full-time county health officers. In spite of all our preconceived ideas as to the healthfulness of the country, the rural sections suffer severely from the ravages of tuberculosis. Such typically rural states as Kentucky and North Carolina (using these as examples) suffer a death-rate from tuberculosis higher than that for the registration states taken as a whole, and higher than for the registration cities. It would be the first duty of a full-time health officer to address himself to the tuberculosis problem of his rural communities.

The typhoid problem is equally urgent. In 1911 the death rate from this disease was 22.2 per hundred thousand in the rural section as against 18.6 in the cities of the registration states. These figures in themselves clearly indicate the many sanitary dangers incident to life in the country. Typhoid fever is always, to the health engineer, an unerring signal directing him toward polluted water supplies, infected food products and unsupervised typhoid carriers. These are a constant menace to the entire state through their effect on milk and other food supplies. All of these sources of typhoid infection, including the disposal of dangerous waste products, lend themselves to the concerted efforts of modern sanitary science. Indeed, no disease has shown such a ready response to control as this preventable filth disease. The full-time health officer, supported enthusiastically by his community, would in the course of his first administration, earn many times his cost in reducing sickness and death from this cause alone.

The full-time health officer would of course participate in other lines of health work. His influence would soon become evident in reduced rates of sickness and death for the other preventable diseases. In no one respect, however, would the services of the full-time officer be more constructive and remunerative to the community than his active participation in child hygiene. In the larger cities throughout the country, this phase of health administration is now permanently established. In the country, on the other hand, this work has not received any serious attention. Children are not so well housed or so well fed in the country as in the city, and school buildings are so poorly constructed that the children are often exposed to conditions of weather and infection which bring about disease. It would be the function of the full-time county health officer to work in cooperation with the school authorities of his community and to see that each child in his jurisdiction is examined for physical defects, at least once a year. If there were no better excuse than the need for some local authority to carry on intelligent and modern work in child hygiene, the states would be justified in appointing full-time county health officers for this purpose.

I need hardly point out to this audience the multitude of ways in which a well-trained and full-time county health officer would serve the state. I need only refer, in addition, to his influence on the vital statistics of his county. While no attempt should be made to burden him with the duties of local registration, his very presence, especially when fortified with an efficient laboratory, would serve to bring together most valuable records of the incidence of the communicable diseases, as well as to improve the registration of births and deaths.

In closing, may I suggest that the committee of your section which has been appointed to study this problem cooperate with the committee of the American Public Health Association with a view to formulating a model bill on the subject of county health administration? This task should not be a difficult one at this time. A number of states, including Kentucky, Maryland, Georgia and Kansas, have either passed laws for county health service or are actively engaged in studying the question. Other states, judging from the character of the answers to our questionnaire, are intensely interested. It should be possible, through conference and study, to determine what a county health bill should contain, and the endorsement of such a measure by this body at a subsequent meeting should be most helpful in placing it on the statute books of a number of states. I can conceive of no more promising field of work for the American Medical Association and especially for the Section on Preventive Medicine and Public Health.

ABSTRACT OF DISCUSSION

Dr. Wm. M. Perkins, New Orleans: With the major argument of Dr. Dublin's paper I agree most heartily. The necessity for more definite organization is apparent. We are fighting the health campaign very much as an untrained mob would fight. That more definitely trained and equipped health-officials are needed is not disputed; nor that there is a necessity for permanent health-officials who thus would have some encouragement to undertake this special work. A health-official cannot be, as a rule, a practitioner at the same time. The health-officer is forced to come into such relations with the rest of the medical profession of the state that whenever political changes remove him he is put in a very bad position with regard to resuming practice. Therefore, men everywhere are hampered in their health-work by the necessity of making a living when the powers that be remove them. There is no more apparent root of evil in the health administration of the present than the constant political changes of health-officers and their domination by politics, and the insufficient guaranty of reward for faithful, persistent and trained effort. With regard to the organization of a proper health army, it has two aspects. One would be to enlarge the powers, duties and responsibilities of the county health-officer as far as possible; then the state health-officer could, to the limit of the state's powers, take up those things which the county health-officer was not empowered to handle, and could leave to the national health-service the matters beyond his own jurisdiction. I am strongly in favor of enlarging the present bureau of public health into a full set of furniture, making it a department, and giving the national health-service as many powers, duties and responsibilities as may be required. The state health-officer then would carry the work as far as he was able, and the local health-officials would be left as little as was necessary. Instead of putting the burden on the lower officials and building up, I think it should be put on the higher officials and built down. I doubt whether the wording of the phrase "full-time county health-officer" is exactly correct. "Full-time health-officer," by all means; but probably it would work out better if the scheme were adopted to a district rather than the county, as Dr. Dublin suggests. In Louisiana we recently tried the plan of suggesting a movement to redistrict the state, cutting out the forty-odd parish or county health-officers, and putting in a small body of full-time district health-officers. The very element of politics and the ambition that men have to hold positions of county health-officers—to which they give little time, little training, and from which they accomplish, many times, little result,—rendered these positions so attractive, and of such honor and glory, that the incumbents fought vigorously not to lose them.

Dr. W. H. Sanders, Montgomery, Ala.: The question of securing adequate compensation to command the entire time of health-officers for the counties is being agitated in all of our states, and the outlook for the early future is growing brighter and brighter.

For eight or ten years, in my state, we have been working to this end. All we need to accomplish our object is to convince the people of the value of such an officer. Eight or ten years ago we secured a law laying down a minimum below which the authorities of a county could not go in fixing the salary of the county health-officer; but we put no limit above. They have had the right for all these years, and enjoy it now, of providing a salary adequate to command the entire time of a health-officer for the county; and we hope, in the near future, to see a number of the counties in my state availing themselves of their privilege, one county having already done so. The only obstacle is the lack of education of the people as to the need of such an officer and what he may do for them. I am glad to say that we are not confronted or surrounded by any of the difficulties mentioned by Dr. Perkins. We in Alabama, fortunately, are absolutely divorced from politics in our public-health administration. The election of health officers is vested in the organized profession; the doctors, in their organized capacity, name every health-officer in Alabama, from the state health-officer down to a health-officer for the smallest municipality. Our people approve this feature of our system, and we have never had any difficulty in maintaining it. With us it is simply a question of the education of the people as to the need of full-time county health-officers.

Dr. W. S. Rankin, Raleigh, N. C.: Dr. Dublin called attention to the fact that our state had more full-time health-officers than any other state that he had replies from. We have eleven whole-time county health-officers in North Carolina. There are 100 counties in the state. We could have had, if we had pushed our campaign along quantitative rather than qualitative lines, twenty or thirty counties. I believe what I say with regard to the counties of North Carolina would apply to the counties throughout the South. There is comparatively little difficulty in persuading a county to employ a whole-time man and to appropriate from $2,500 to $3,500 for the salary and expenses of such a health-officer, requiring him to own an automobile. Of course, a whole-time man with an automobile is worth two without one. To get whole-time health-officers in the counties is easy, and I will give our methods to anybody that wants them. After the officer is obtained, the troublesome thing is to get him to do the right kind of work. Dr. Dublin recommends that the state shall have power to require the whole-time officer to perform certain duties. That is about the only way that this system of county health-work will amount to anything. My first idea was, after the whole-time men were elected, to have them take three or four days to confer concerning their four or five definite fundamental duties; then for them to adopt some system of work embodying these duties. The report should be such that, when published by the state board of health, it would be comparative. I derived my idea from the work of the Rockefeller Commission in the South. Their men are all doing the same kind of work, making the same kind of report and using similar report blanks; at the end of each week the results are published in such a tabulation as to make a comparative showing for each man. Instead of statutory power to compel these men to do certain things, we simply wanted to use that powerful law-enforcing power in American life—the power of publicity—to make them do their duty. If we could have gotten them to adopt a uniform standard of work and a uniform monthly report, and then published the work of each man, each month, in the health bulletin distributed throughout the state, and in the newspapers, we would have all the power that we need.

When the whole-time men came together, however, they decided that, inasmuch as some of them were inexperienced in health-work and the whole thing was experimental, they had better not establish any uniform plan to begin with, but rather should spend six or eight or twelve months in the field and find what work was needed, then later, perhaps, adopt a uniform standard of work.

Dr. J. W. Trask, Washington, D. C.: I think both Dr. Dublin's paper and its discussion show distinct progress in the evolution of health administration in this country. It is especially interesting, in my opinion, as showing the approach of the second step in health organization. I believe it is logical to assume that the state, being the larger unit of population and the larger political jurisdiction, will develop an efficient health department before the counties do. I take it that Dr. Dublin presupposes full-time state health-officers. Unfortunately, that is not so throughout all the country; but I do not believe that the development of the county organization should be delayed on that account. The position of state health-officer is not only one that requires an able man, but requires all his time. I do not believe that it is compatible with proper state health administration that the state health-officer should be devoting his attention to other things and his official work constitute a side line. Dr. Dublin's logic is sound, and, assuming that the necessity of full-time state health-officers has been established, it is time to strengthen health administration in the next smaller political subdivision of territory. It does not necessarily mean a county. I think that the county, however, having already a political organization, will in most instances be found the most suitable and convenient. The progress of health organization is undergoing a natural evolution. It was first appreciated that the state needed all the time of its health-officer. It is now apparent that the county also needs a full-time health-officer. In time further needs for full-time health-officials will undoubtedly be found in territorial subdivisions smaller than counties where the population is sufficiently great.

Dr. S. A. Knopf, New York: We have heard a good deal of the duties of the health-officers, but nothing of their rights. It seems to me that any health-officer without police power is but a feeble power in his community. I had occasion recently to examine some country schools, and, to my amazement, I found that the hygiene in those schools is sometimes many times worse than in cities. In many communities I have found that the health-officer has no control over the tuberculous patients who, because of ignorance or indifference, infect not only the members of their own families but their close neighbors and friends. If the health-officer of any community is not empowered to remove such dangerous patients to a place of safety, I mean where they will not be allowed to spread their disease, I cannot see the utility of the office in relation to tuberculosis. Unless the health-officer can order an unsanitary school to be made sanitary, he is but a weak factor in his community. I highly approve of all Dr. Dublin's suggestions. I hope those in power will propose bills and help in the enactment of laws whereby the health-officer of any community, small or large, shall be given police power to enable him to enforce the sanitary regulations whereby the whole community is to benefit.

Dr. A. T. McCormack, Bowling Green, Ky.: I want to express my appreciation of Dr. Dublin's excellent work. I think nothing went further in showing the members of our recent general assembly the wisdom of legislation creating full-time health-officers than the publication which Dr. Dublin distributed in Kentucky. The value of such essays distributed to the people has been greatly emphasized in our state, and I am glad to express the gratitude Kentucky feels to the Rockefeller Sanitary Commission for the Eradication of Hookworm Disease for the opportunities it has given to the people of Kentucky to see actual demonstrations of what a full-time health-officer can do. The health campaigns which have been conducted in Kentucky in connection with this commission, this dispensary work, with a trained sanitary inspector in charge, with expert microscopists, with the trained workers in the warfare against tuberculosis conducting campaigns of from three weeks' to three months' duration in many counties, carrying the lessons of better health and longer life into the rural homes and country stores and schools and churches, are in this way best enabling the people themselves to realize what would be possible if each county could have a man devoting his entire time and energy to this work, assisted and supported, as he would be, by the organized medical profession and an educated public opinion. There was not an intelligent or thinking member of our recent legislature from a section in which these dispensaries had been held who was not only in favor of the creation of a full-time health-officer, but was more in favor of this legislation than any other matter before the general assembly. In Kentucky more than 200,000 men, women and children have been examined for intestinal parasites, and nearly half of them have been found to harbor hookworms or some other variety. If the Rockefeller Sanitary Commission had accomplished nothing else, if not one of those infected had been treated (and practically all of them were treated), the change of sentiment brought about by the demonstration to our people of the accurate sanitary methods of modern medicine, their increased confidence in their family physicians, their increased desire for better and more practical education in preventive medicine, would have justified the expenditure of all the money and energy which has been put into the work.

L. I. Dublin, Ph.D., New York: Dr. Rankin's experience should prove most valuable to every state health-officer. It seems to me like a hopeless task to begin with the idea of local autonomy, although there is always a great temptation to do that. As Dr. Rankin has pointed out, there is the strong possibility that a group of county health-officers will combine for selfish purposes and defy the state department to compel them to do the right thing under the law. Unless they are appointed subject to the approval of the state department and can be removed from office by the state department, the administration of the county health service is very likely to become political and of little value. I therefore hope most sincerely that the committee appointed to report a bill for full-time county health-service will have in mind a system in which the state is the central authority, the several county officers being at all times responsible to the state and subject to its control. A bill which will have the approval of your organization and that of other national organizations like the American Public Health Association will have great weight with the state legislatures and is very likely to be enacted into law.

The Need of a Knowledge of Anatomy.—A disease must always have a relation to a healthy action, or healthy structure of parts, for it is only a deviation from them; so that a knowledge of disease would appear to rest on a knowledge of the body in its healthy state. It is in this point of view that anatomy and physiology become so very important, as being most likely to afford the means of relieving the body when suffering under disease. If anatomy, then, be of so much use in physic surgery, it ought to be earnestly cultivated by those who really wish to know their profession, and to become respectable in it. This is not a trifling matter. Justice and humanity require every exertion where the lives of our fellow-creatures are concerned. There are many professions where negligence or inattention may be reckoned a folly; but in medicine it is a crime. There is nothing that renders a person more fit for the discovery of new diseases, than a knowledge of anatomy.—Matthew Baillie.

A REVIEW OF CURRENT HOSPITAL TOPICS *

L. B. BALDWIN, M.D.
MINNEAPOLIS

After considering various topics on which to address you it appeared to me that the interests of the Section on Hospitals would be best served by an effort to emphasize further the importance of certain matters affecting the conduct of hospitals which are of special interest to the hospital administrator, and worthy of the consideration of the medical profession generally, and with which you are already more or less familiar.

The object in thus bringing them to your attention is to stimulate this Section to interest itself further in them as a body, to the end that it may exercise the influence for greater hospital efficiency of which it is potentially possessed, and which I believe to be its greatest function.

If the Section on Hospitals is fully to justify its existence it must assist, so far as possible, in promoting the aims of the other component parts of the parent organization. In return it may expect of them a fair consideration of and cooperation in the problems peculiar to itself.

While some of the matters to which I shall refer are not of recent origin, it is only during the last few years that their importance has come to be so generally recognized as to result in active efforts to secure their realization. These efforts have been inaugurated in part through the initiative of individuals who have been directly concerned in hospital administration, and partly as a result of certain demands arising from without the domain of hospital management.

Most prominent among the latter are the demands of medical education for larger and more efficient hospital facilities for the purposes of instruction in the clinical branches of medicine. These demands have been met in different places in various ways; but in no instance without involving hospital organization and standardization. These, I believe, are the most important subjects concerning hospitals of mutual interest to the different sections of the American Medical Association to-day. They are interdependent, and the ideal of hospital efficiency for which we are aiming cannot be realized without giving them the careful consideration which their importance indicates.

It is not my purpose to discuss the relative merits of different types of organization, or to suggest that the subjects of hospital organization and standardization should be approached from the point of view of medical education alone, but rather to urge, since they are of such great importance to hospitals, that they be considered and acted on in a broad way.

It must be admitted that the relationship between medical education and hospitals is such that the one cannot develop higher ideals and standards without the assistance and cooperation of the other. Hence, the problems of medical education become, to a great extent, the joint problems of the hospital administrator and those directly concerned in medical education.

Therefore, the best types of organization for the different classes of hospitals and the principles and methods to be employed in the general standardization of hospitals can best be determined through the cooperation of those representing the different interests involved. For this reason it would seem just and desirable that the Section on Hospitals be represented on the Council of Medical Education, and I would recommend that action be taken at this session to secure such representation.

A study of different hospital organizations which have recently been effected demonstrates that there are differences of opinion as to what type of hospital organization best serves the interests of medical education, but there is no disagreement on the proposition that, generally speaking, organization can be improved on.

Justification for the present existence and further extension and development of hospital organization of a type which brings the public wards, at least of the larger hospitals, in closer affiliation with medical schools is found in the experience of those hospitals in which such organizations have been in effect. The fact that the hospital so organized is benefited by such close relationship has been amply demonstrated. Just why the idea that the admission of medical students to the wards of hospitals for the purpose of receiving clinical instruction under proper supervision is inimical to the welfare and proper care of patients should have obtained so long in this country is not clear, especially in view of the fact that intimate connection between medical schools and hospitals has existed for centuries in England for precisely that purpose.

It may be said that, so far as medical education is concerned, the ideal hospital organization is that suggested by Abraham Flexner in his report on medical education in the United States and Canada. In this connection he says:

> The patient's welfare is ever the first consideration; we shall see that it is promoted, not prejudiced, by the right kind of teaching. The superintendent must be intelligent and sympathetic; the faculty must be the staff, solely and alone, year in and year out. There will be one head to each department—a chief—with such aides as the size of the service, the degree of differentiation feasible, the number of students, suggest.
>
> The professor of medicine in the school is the physician in chief to the hospital; the professor of surgery is surgeon in chief, the professor of pathology is hospital pathologist.

That the difficulties which may be, and usually are, met in attempting to apply an organization of such general character to large public hospitals are not wholly insurmountable is evidenced by the type of organizations planned for the new municipal hospitals of Cincinnati and Louisville.

The municipally supported or privately endowed hospital which, given the opportunity to affiliate through its organization with a medical school of recognized standing, does not avail itself of the privilege, is not fully discharging its obligations to the community it serves.

The value of one thing in connection with hospital organization deserves special emphasis. The larger hospitals at least should each include, as a part of the staff organization, a committee, the chief function of which should be to promote professional and administrative efficiency. This committee should be made up of a staff member from each hospital service, or division, and the superintendent or his representative. The membership thereof should be as small as practicable. The suggestion for, as well as a reference to the importance and value of. such a committee was

---

* Chairman's address, read before the Section on Hospitals at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, June, 1914.

included in the address of Dr. F. A. Washburn, president of the American Hospital Association, last August. This matter is also urged on us by the Committee on the Standardization of Hospitals of the Clinical Congress of Surgeons of North American in connection with another matter which will be referred to presently.

Concerning the general standardization and classification of hospitals, progress has been made. The questions involved have been ably presented and discussed at various times by many, including the secretary of this Section, who has been actively engaged with others in promoting plans for its accomplishment, and to whom much credit for the advance is due. The action already taken in this direction by the Section on Hospitals was approved by the adoption of a resolution presented at the last meeting of the American Hospital Association by Dr. Hurd, providing for the appointment of a committee to consist of three of its members to act with a similar committee of this Section and cooperate with it in promoting the measure.

Any standardization which is to become effective and acceptable must of necessity be based primarily on a classification of hospitals and the character of the service which each renders to the community it serves. To adopt methods of standardization which overlook the opportunities to assist the smaller, worthy hospitals to effect still higher standards would be unfortunate. On the other hand, the principles and methods employed must be sufficiently comprehensive to put the so-called hospitals which permit or condone objectionable or criminal practice in a properly designated class by themselves. That such hospitals do exist is a recognized fact which must not be overlooked in the determination of principles and methods of standardization.

That some system of periodic, competent inspection of hospitals is desirable is generally admitted by hospital administrators. How best to obtain this is a matter with which the Section on Hospitals should concern itself. Some system of inspection must precede any standardization undertaken, and be continued permanently thereafter if the desired results are to be obtained and perpetuated.

The Council on Medical Education has wisely considered the whole subject of hospital standardization in a general way from the point of view of medical education and is now preparing for publication a provisional list of hospitals acceptable from the standpoint of furnishing satisfactory training for interns. This provisional list will shortly be published and will amount to a temporary standardization of hospitals in that direction. In this connection the Council has arranged for the appointment of advisory committees in different states to assist in this work, and the provisional list will later be revised on the basis of reports submitted to the council by these several committees. What action, if any, will be taken by the Council with reference to the further and more general standardization of hospitals remains to be seen. Obviously it is not within the province of the Council on Education to concern itself to any great extent in the direction of those hospitals in which clinical instruction cannot, for one reason or another, be undertaken.

The program of this meeting of the Section on Hospitals bears testimony that there are other things requiring attention in the direction of standardization.

Who of us has not noted the diversity of surgical technic exhibited by surgeons equally competent in diagnostic ability, surgical judgment and operative skill? Why should two or more equally competent and reliable surgeons demand different types of surgical apparatus, equipment or instruments to accomplish the same result in a given case? If such a diversity of technic were essential to the welfare of the patient no question could or would be raised concerning it. That it is not essential is amply shown by the statistics of certain hospitals wherein differences of surgical technic obtain.

Since autostandardization of the surgeon is being attempted, the least the hospital administrator can do is to afford every facility possible to make its accomplishment both sure and rapid. The measures which have been institutel in this direction, notably the creation and organization of the American College of Surgeons, are based on a recognition of the fact that there is still ample opportunity for improvement, notwithstanding the marvelous progress made by surgery in recent times. These measures conscientiously followed out will ultimately result in the further elevation of the surgeon, and incidentally the hospitals, in the confidence of the public.

A criticism of the statistics usually embodied in the reports of general hospitals has recently been made from at least two sources. That ultimate results of the care and treatment of the patients covered in most reports are not indicated, is plain. There is a demand, on the part of the profession, for a revision of the form of these reports based on a follow-up system. The report of the Committee on Standardization of Hospitals of the Clinical Congress of Surgeons of North America covering this matter was adopted at the meeting of the congress last year and the report has been generally circulated. Statisticians are also free in their criticisms of the form of most hospital reports, and the criticisms from both sources are just. We, as hospital administrators, would do well to act on the suggestions for improvement in this direction already made and put them into effect as promptly as possible.

Details of hospital construction are never without interest to the hospital administrator. Our attention is called to the necessity of ascertaining certain scientific facts on which intelligently to base standards for the ventilation of hospitals. This matter will be brought to your attention in detail during this session and the Section requested to lend its influence by supporting some measure looking to an investigation and report on the subject by a properly constituted body.

One cannot consider the subject of hospital construction in this country without being impressed by the vast amounts of money which have been and are now being expended in the erection of buildings for hospital purposes. There is a well-founded belief in the minds of some that beauty of architecture has been achieved in many instances at the expense of thoroughly practical utility. In formulating plans for a hospital it should be remembered that beauty is only skin deep, and that the prime object of the hospital is the efficient, economical care of patients coming to it. The increasing demands on the part of the public for greater free hospital facilities, together with the difficulties frequently experienced in securing the necessary funds to meet these demands, causes one to wonder, if, in the construction of the large modern hospital of today, we always realize the largest practical and efficient facilities possible for the expenditure involved. The hospital administrator engaged in planning buildings should duly consider the opinions and desires of the staff, but he will frequently be shocked by the unreasonableness thereof, both as to space desired and equipment asked for. It is then his duty and province to evaluate their demands and bring them into proper relation with the whole on the basis of modern medical knowledge and principles and methods of administration.

University Hospital.

THE TONSILS AS A HABITAT OF ORAL ENDAMEBAS

POSSIBILITY OF SYSTEMIC COMPLICATIONS OF ORAL ENDAMEBIASIS *

ALLEN J. SMITH, M.D.
PHILADELPHIA
WILLIAM S. MIDDLETON, M.D.
MADISON, WIS.
AND
M. T. BARRETT, D.D.S.
PHILADELPHIA

In connection with work recently carried on by Smith and Barrett in the pathologic laboratories of the University of Pennsylvania[1] indicating that the parasitic amebas of the mouth hold an important relation in the etiology of pyorrhea alveolaris or Riggs' disease, and that by the use of emetin (alkaloid) as an amebicide these organisms may be destroyed and the pyorrheal lesions cured, we have sought to determine whether these protozoa may not find their way also into the tonsils and there perhaps be of importance in determining or in maintaining certain of the inflammatory lesions of these structures, at least with or without associated systemic complications. To the present time only the first of these propositions can be said to be proved, that is, that these parasites actually at times involve the tonsils. The conditions of the tonsils of persons in whom they have been found infested, and the behavior of several positive cases with systemic complications after the administration of emetin, however, are decidedly suggestive and encouraging to continued investigation now in hand.

In the work of Smith and Barrett the endamebas encountered in pyorrhea pockets have almost invariably been of the species *Endamoeba buccalis* Prowazek, 1904 (probably identical with *Endamoeba gingivalis* Gros, 1849 and *Endamoeba buccalis* Steinberg, 1869); two of their cases to date being regarded by them as *Endamoeba kartulisi* Döflein, 1901. They are uncertain, but regard it not improbable that of the instances held primarily as *Endamoeba buccalis,* certain ones may represent a third, as yet unclassified species. These organisms have been long known, but have been hitherto uniformly held to be non-pathogenic parasites of the mouth, on the supposition that they do not penetrate the tissues, are merely surface habitants, and are found in normal as well as in pyorrheic mouths. Barrett in his report of their work records the uniform discovery of endamebas in the pus of pyorrhea pockets in forty-six patients, without exception; offers as controls seven mouths free (after careful dental examination) from pyorrhea, and free also of amebas; and records to the date of his report before the Pennsylvania Dental Society (July 1, 1914) thirteen cases of Riggs' disease treated with emetin either with complete cure or with marked progress toward recovery. Since then all of these patients have fully recovered and numerous additional cases have been collected showing the presence of endamebas in pyorrhea pockets and the effectiveness of emetin in their destruction and in the cure of the suppuration.

In the latter part of July, 1914, before the American Dental Society of Europe, in session at the time in Paris, Dr. Angelo Chiavero,[2] a dentist of Rome, in a paper devoted to the morphologic and systematic study of *Endamoeba buccalis,* records his invariable discovery of the parasites in twenty-two cases of alveolar pyorrhea, its frequent presence in the soft deposits on sound teeth not kept in good hygienic condition, its absence from carious dental cavities in active process of decay and its absence from hard tartar. In his conclusions, however, he states his belief that these organisms are of no pathogenic influence, but that he regards them, from the fact that they feed on bacteria, as adjuvants to autodisinfection of the mouth.

Still more recently Bass and Johns[3] of New Orleans have announced their discovery of these endamebas in eighty-five out of eighty-seven cases diagnosed as Riggs' disease which they have had the opportunity of examining, and declare the curative efficiency of emetin administered hypodermatically. The results which have been obtained from the use of emetin, whether employed locally or administered hypodermatically, constitute an appealing argument for the actual pathogenic importance of these protozoa, an argument short only of ideal proof by successful inoculation of pure cultures[4] and surely of equal significance to the old "therapeutic tests" with mercury and iodids for syphilis and with quinin for malaria.

When one realizes the readiness with which along with the purulent discharge these parasites may emerge from the pyorrhea pockets, and the favorable circumstances for their active and passive distribution over the surface of the oral mucous membrane and of the teeth, there is little reason for wonder and no strong force of argument in the fact that they are found on these surfaces. There is as little reason to hold the frequency of their occurrence as human parasites as an objection to their pathogenicity if one remembers that it is commonly held by the dental profession that pyorrhea alveolaris is, with the exception of dental caries, the most frequent disease which affects humanity and that with careful examination by competent dentists an overwhelming proportion of all persons applying for all sorts of dental affections are found to have in obvious or in less degree some suppurative peridental lesions. Even if trivial, these may be the habitat of amebas and the source of those found on the free surfaces. It would be as reasonable to contend that because the endamebas of dysentery are found in the dejecta they do not also penetrate the tissue of the colonic wall. The pyorrhea pockets may very properly be held the analogs of the ulcerous excavations found in the mucosa and submucosa of the colon in amebic dysentery; and, while it is equally true of both locations that the endamebas which are actually at a given moment on the surface of the mucous membranes are not at that particular time causing disease, each species in its place by penetrating into the tissue produces a suppurating excavation, a "pocket" or an ulcer. The precise rôle in each instance of associated bacteria cannot be asserted; but there is reason to suspect their conjoined importance and, too, an important symbiotic relation between the protozoa and the bacteria.

---

* From the Pathological Laboratories of the School of Medicine, University of Pennsylvania, and the Department of Clinical Medicine, University of Wisconsin.

[1] For preliminary report, see Barrett: Dental Cosmos, August, 1914.

[2] Chiavero, Angelo: Abstr., Dental Cosmos, September, 1914.

[3] Bass and Johns: New Orleans Med. and Surg. Jour., 1914, lxvii, 456.

[4] Smith and Barrett (personal communication) have succeeded in obtaining indifferent and always bacterially contaminated cultures on fresh egg albumin, but have not succeeded in isolating the amebas so as to make inoculation experiments practicable.

Believing that from their proximity to pyorrhea pockets and their favoring anatomic structure the tonsils might be invaded and form another habitat for these endamebas, we made a number of examinations of tonsils to determine their occurrence in these organs. In examining the tonsils for parasitic amebas, because of the difficulty occasioned by want of technical skill in obtaining from these organs a proper amount of material for examination, the search was restricted at first to freshly excised tonsils, the examination being made directly in the operating room as quickly as the tonsils were removed. All the tonsils thus examined were removed by Dr. Ralph Butler of Philadelphia, to whom we wish to express our feelings of indebtedness. The excised tonsil was squeezed to discharge the more superficial contents of the crypts; and after this had been removed, by firmer pressure the deeper contents of the crypts and perhaps some of the interstitial juices were forced to the surface and examined on a warm slide, diffused in a small drop of warmed normal saline solution. Seventeen cases were thus examined, five of the number showing motile amebas of the type of *Endamoeba buccalis* Prowazek, and regarded by us as this organism. In the material obtained from a sixth case an ameboid type of cell, with multiple long slender almost filiform pseudopodia composed of clear material, and with a granular body roughly measuring 20 micromillimeters in diameter, non-vacuolated and with a small and clearly visible body regarded as the nucleus, was found. It was not unlike *Amoeba gracilis* (a form once encountered by one of us in a subphrenic abscess). No motility could be determined, however, and while it is believed to have been an ameba, uncertainty is acknowledged and the case is not included in the list of positive tonsillar infestations. All of these seventeen cases were instances of some type of chronic tonsillitis, usually with tonsillar hypertrophy. The tonsils of the five persons in whom these organisms were demonstrated were all large, with pouting crypts; and were removed from young persons presenting the usual local and general symptoms of chronic tonsillitis with irregularly occurring exacerbations. The cases were not followed up beyond the point of determination of the parasitism, since, at the time, the establishment of this as a fact was the prime purpose in hand.

During the same time attempts were made, but in no instance with success, to obtain material from the tonsils *in situ* by scraping out the contents of enlarged crypts with a suitable pointed instrument. Later, however, with a fine pointed glass pipet to which was attached a strong suction bulb it was found comparatively easy to withdraw a small amount of semifluid material from the depths of the crypts, sufficient for microscopic examination. The tonsils are practically insensitive to the operation, and the point of the pipet may be introduced without discomfort into the crypts to such a depth that when suction is applied numerous red blood-cells are withdrawn in the viscid fluid which enters the lumen of the tube, indicating that more than mere cryptal contents are obtained. This is placed, with or without dilution, in warmed normal saline solution, on a warmed slide, covered, and examined without further preparation for the moving amebas. Permanent preparations may of course be made by fixing the film, preferably in warm Schaudinn solution, and staining with Giemsa's stain or with iron hematoxylin; but for diagnostic purposes the recognition of the moving parasites is advantageous and satisfying. We have thus far not found the organisms in this tonsillar material in numbers comparable to those ordinarily noted in the material from pyorrhea pockets, but believe that with better methods of withdrawal of material they will be found more frequently and in larger numbers.

Riggs' disease has for years been suspected of primary relationship to various systemic disturbances, including particularly certain chronic or recurrent arthritic affections, and possibly, too, some of the anemias of obscure origin and degenerative lesions of various parenchymatous organs; and even greater suspicion, amounting almost to certainty, has attached to tonsillar affections in relation to such systemic complications. Following these ideas, which are essentially those of Hunter[5] and others, the possibility of more generalized influences must necessarily occur, the effects of either the endamebiasis or of the associated bacteria, or both. Direct extension of the inflammatory processes, or lesions due to metastasis by lymphatic or hemic convection, or due to the effects of swallowed or absorbed toxic products are, logically, at least to be thought of.

In several instances in the series of cases treated for pyorrhea by Dr. Barrett, there has been noted, after the cure of the pyorrhea, the disappearance of symptoms of gastric and intestinal disorders. Similar experience has been related to us by several dentists following emetin medication; and while perhaps in a few cases this may be due to the happy effect of a coincidence of pyorrhea and amebic dysentery (as in a case communicated by Dr. F. C. Narr of Philadelphia to us), this explanation can be accepted only in exceptional instances. It would rather suggest that the cure of the oral lesions has diminished the bacterial and other poisons which previously had been swallowed and had been causative of some grade of gastritis.

During the latter part of the summer in the wards of Dr. B. F. Stahl in the Philadelphia General Hospital six cases of chronic arthritis were examined, in four of which endamebas were discovered in material thus obtained from the tonsils. These were all adults.

CASE 1.—A white male patient had been recently admitted with a history of arthritis of ten months' duration, in one knee, an ankle and both shoulders. The tonsils were not especially enlarged, but showed prominent crypts with the tissue immediately surrounding them turgid, boggy and red, giving the crypts a pouting appearance. There was a history of recurrent, mild, apparently causeless sore throat. Under treatment with salicylates the conditions in the tonsils and joints cleared fairly promptly; and two examinations thereafter failed to show the presence of endamebas, which at first were readily encountered along with numerous spirochetes and bacteria.

---

[5] Hunter: Brit. Med. Jour., Nov. 19, 1904.

Case 2.—The patient, a white man, was admitted with a subacute arthritis of supposed Neisserian origin, affecting the right ankle. The tonsils were of the same type as in the preceding case, and material removed by pipettage showed occasional amebas. The case cleared up symptomatically on ordinary treatment in about four days, succeeding which period three examinations on different days failed to show the persistence of any endamebas.

Cases 3 and 4.—Both patients were afflicted with chronic arthritis, but presented no appreciable tonsillar lesions. Material taken by pipettage from the retrotonsillar space in front of the faucial pillars revealed no endamebas in either. (We regret that tonsillar puncture was not performed for obtaining material, as we believe that the proper material, suggested by the blood-cells always obtained in the pipet, is really not merely of cryptal but also of interstitial source.)

Case 5.—A white woman, with typical rheumatoid arthritis, with the small joints of the hands and feet, the joints of the jaw, elbows, ankles and knees and of the spinal column affected, gave a history of recurrent sore throat. Her tonsils were fibroid; the tonsillar tissue on the right side just anterior to the posterior pillar red and beefy in appearance. Amebas have been found repeatedly from material from the latter situation.

Case 6.—A white man with chronic arthritis (involving both knees, ankles, wrists and elbows, and the small joints of the hands and feet) had cryptal enlargement in both tonsils, with a deep red boggy appearance of the pericryptal tissue of the tonsils, this more marked on the left than on the right side. Amebas were readily found in the material withdrawn from the tonsils.[6] Originally this man had an attack of acute articular rheumatism eighteen or twenty years ago, with persistence of subacute symptoms for six months afterward. In the interim, while suffering from occasional twinges of pain in various joints (never disabling) he was free from acute symptoms until four months prior to his present admission to the hospital; and at irregular periods had a recurrent sore throat usually without appreciable cause. In the spring of the current year he developed a septic thrombophlebitis of the right internal saphenous vein for which he was treated in the Philadelphia Hospital, being kept in bed almost continuously for six or eight weeks. He was thereafter discharged from the hospital; but until his readmission about eight weeks later he was never free from pains in his joints, although able to move about without much difficulty, but with many of his joints showing permanent enlargement. He was readmitted to the hospital in a state of intoxication and was assigned to the "drunk ward," where he soon developed an acute exacerbation with arthritic involvement as stated above, and with moderate swelling and redness evident about many of the involved joints. For a week he was actively treated with sodium salicylate and bromid of sodium, but without appreciable effect on the arthritic condition. At this time endamebas were found in the tonsils (and too in pyorrhea pockets); and from August 6 the patient was given thrice daily 1/6 grain of emetin hydrochlorid (by mistake by the mouth, although ordered hypodermatically). August 9 he was entirely free from pain in the joints and from the redness and swelling except in the knees. From the last date he was given 1/3 grain of emetin daily hypodermically, and on August 12 he was free from all acute arthritic symptoms, but with persisting enlargement of the joints. Thus improved he was discharged.

Case 7.—A somewhat similar case was communicated to us by Dr. Gibson Smith of the intern staff of the Murray Hospital of Butte, Mont. The subject, a white adult, a miner, had had subacute arthritic symptoms involving the joints of the neck, elbows, wrists, fingers, knees, ankles and toes for five or six months continuously, with irregular exacerbations through this period. He had had his upper teeth removed fifteen years before, presumably because of pyorrhea, and has had pyorrhea about the lower teeth at least ever since. Numerous motile endamebas were found by Dr. Smith in pus from the pyorrhea pockets. No examination of material from the tonsils was made, these organs appearing normal grossly. The pyorrhea was treated locally with emetin hydrochlorid, and in addition the drug was administered hypodermatically. Within four days the gingival suppuration had ceased and the amebas could no longer be found in scrapings from the pockets; the joint symptoms had subsided and the patient was able to return to his employment for which he had previously been incapacitated more or less of the time. No report has been received to indicate whether or not the improvement has continued.[7]

Two other cases, one referred through the kindness of Drs. Krumbhaar and Gerhard from the medical dispensary of the Pennsylvania Hospital, the other a patient in the medical ward of the University Hospital examined by permission of Dr. Stengel, have been found to have amebic oral infestation.

Case 8.—The first of these, A. A., a white woman, aged about 40 or 45, was regarded by the dispensary physicians as having chronic toxic arthritis, and had been referred to the throat dispensary of the hospital, where it was advised that removal of one of the tonsils be performed because of a diffuse interstitial tonsillitis. Endamebas were found in pyorrhea pockets about several of her teeth, and in the affected tonsil. Emetin treatment was suggested for trial; but difficulty in obtaining the drug for use in the dispensary postponed for several weeks its employment, and no report has thus far been afforded.

Case 9.—The second case, that of A. R., a white woman in Dr. Alfred Stengel's wards in the University Hospital, presented the usual features of long-standing arthritis deformans. She was found to have a marked case of pyorrhea with endamebas in the pockets; but no parasites were found in the tonsils. Emetin was to have been used in the case, but on trial caused an unpleasant nausea and it was at once suspended.

In the original series of cases reported by Dr. Barrett as treated by local administration of emetin hydrochlorid for pyorrhea there was a young white woman with a marked but unstudied anemia, poorly nourished and in a depressed condition of general health. Since her recovery from the pyorrhea, a matter of about three months, she has acquired an excellent color, has added 15 pounds in weight and is now in excellent general condition. This case suggested the possibility that some of the obscure anemias, especially those suspected of being of hemolytic origin, might find their explanation in oral endamebiasis. Thus far we have had the opportunity of examining the mouths in three cases regarded as pernicious anemia and in all three have found *Endamoeba buccalis* in the gums and in one of the three also in the tonsils. All three of these patients have been receiving treatment with other remedies, and it is quite impossible to know whether the emetin applied locally and hypodermatically to two of them has had any influence or not. One of the two, improving under sodium cacodylate and iron, has improved continuously and apparently especially after local treatment of his pyorrhea and hypodermic administration of emetin hydrochlorid. A less marked but distinct temporary improvement was noted in the second, although at present the blood-picture has receded; here, too, the emetin was only incidental to treatment with sodium cacodylate and iron citrate.

---

[6] The rapid hemolysis of a freshly englobed red blood-cell in one of these endamebas is noted in this case, and is of interest; disappearing without fragmentation by solution in the course of five minutes. The same phenomenon has been seen in endamebas from pyorrhea pockets by Smith and Barrett.

[7] Reported Oct. 15, 1914, that after recurrence of arthritis with well-marked redness and swelling on September 16, an intramuscular injection of 2 grains of emetin hydrochlorid was promptly followed by disappearance of all arthritis symptoms, without any return to date of report.

We freely acknowledge that the scant data here presented can in no wise be interpreted as proving that oral endamebiasis is surely a factor of generalized intoxication in the production of arthritis or anemia. We believe, however, that the positive finding of the parasitism in connection with these conditions and the favorable features mentioned as met after administration of emetin in these few isolated cases are sufficiently suggestive to warrant further trial. In study of the possible relation it would be illogical to suppose that the toxic states determining either the arthritides or the anemias must either entirely or always be due to the oral condition; at best, if there be a relation, that can be true only in individual cases. Efforts to determine a relationship are sure to fail frequently, and failures are bound to be recorded (even if we are correct in our suspicions) until sufficient knowledge and experience are had to select properly, directly or by elimination, the appropriate cases. It is illogical to even suspect that, granted the existence in an individual of oral endamebiasis, there must necessarily be systemic complications, or that such complications must be of uniform character. Much must depend on the local circumstances governing absorption, and much, too, must depend on the number and type of associated bacteria. Whatever other relation may obtain between the amebas and the accompanying vegetable micro-organisms, one may be certain that the amebas feed largely on the latter; and in this bacterial phagocytic action they doubtless set free from this and from that organism different endotoxins. Doubtless bacterial toxins thus originating play a more important part than do toxins from the amebas themselves, if there be amebic toxins; and the end-results of toxic absorption are sure therefore to vary, now manifesting as hemolysis, now as cellular degenerations or necroses of fixed tissues, now as inflammatory changes as of synovial or serous membranes.

CROTALIN IN EPILEPSY *

C. L. JENKINS, M.D., and A. S. PENDLETON, M.D.
First Assistant Physician and Clinical Pathologist, Respectively, State Hospital
RALEIGH, N. C.

On account of the wide publicity given through the lay press to the supposedly wonderful results to be obtained from the use of crotalin in the treatment of epilepsy, we feel that we owe it to the profession to present to it the results obtained from this treatment at the Epileptic Colony at the State Hospital at Dix Hill.

First, we wish to state that this treatment has been given under and by the direct advice of Dr. Thomas J. Mays, one of its chief advocates, and to say further that his instructions have been faithfully carried out.

The advocates state that the principle on which this treatment depends is the fact that crotalin decreases the coagulability of the blood, and they assert that the coagulability is increased in epilepsy. We wished to confirm or refute this and very readily did so by making use of a Boggs coagulometer, which was first carefully tested out on normal blood at a temperature of from 60 to 65 F., the temperature at which the abnormal blood was tested. The mean coagulation time for this particular instrument was 6 6/17 minutes. The mean coagulation time for the blood of nine epileptics who had received no crotalin was 12 7/9 minutes. The mean coagulation time for the blood of eleven epileptics who had received about forty doses of the remedy was 9 3/11 minutes, while the mean coagulation time of the blood of thirteen epileptics who had been given eighty or more doses was 7 4/13 minutes. These findings would indicate that the exact opposite to the assertions of the advocates is true, and this is further in accord with the well-known serologic principle that the injection of any foreign substance into the blood causes the formation of antibodies.

That this condition of the blood is exceedingly transitory seems probable, as in three patients who had taken no crotalin in three weeks (though they had previously received over one hundred doses) the mean coagulation time was 14 1/3 minutes.

In a more recent paper, Dr. Mays states that he uses crotalin on account of its pharmacologic effect, saying that its action is very similar to that of the cyanids. Let us hope that he is nearer right in this than in his former contention. We are afraid, however, that even this is not entirely true, as practically all of the patients assert that they get decided stimulation from the therapeutic dose of this drug, and the cyanids have never been accused of any such action.

CONVULSIONS DURING TIME OF OBSERVATION

Period	Dosage	Time	Number of Convulsions Men	Women	Tot.	Gr. Tot.
Three months before treatment	No crotalin	January ...	215	135	350	
		February ..	241	190	431	
		March	280	214	494	1,275
First three months of treatment	10 minims twice a week	April	277	267	544	
		May	333	286	619	
		June	231	246	477	1,640
Second three months of treatment	10 minims once a week	July	263	282	545	
		August	209	289	498	
		September .	244	260	504	1,547
Third three months of treatment	5 minims once a week	October ...	253	235	488	
		November .	250	233	483	
		December .	275	247	522	1,493
Three months' treatment discontinued	....	March	157	201	358	
		April	274	250	524	
		May	257	222	479	1,361

In poisonous doses it does cause convulsions—whether or not for the same reasons that the cyanids do—remains to be proved. He tells us that the homeopaths have been using snake-venom by mouth for many years for epilepsy and by inference we are led to suppose that he has been converted to "the hair of the dog is good for the bite" theory. In this dissertation he further attempts to explain the nature of epilepsy, with the usual result.

Differential blood counts in nineteen patients who had received from forty to one hundred doses showed a tendency to slight eosinophilia with a slight increase in mononuclears, with no apparent effect on the total number of leukocytes or on the red blood cells, nor did the hemoglobin seem to be affected. In two cases with abscesses the septic factor was present, as would be expected.

The drug is supplied in solution, 5 minims of which equals 1/100 grain, and the directions are to give it hypodermatically twice a week, beginning with 4 minims and increasing to 10. Later advices were to give no more than 5 minims. The hygienic and dietetic treatment was the same for these as for other patients.

To determine its effects on the number of convulsions, it was decided to record accurately every con-

---

* Read before the North Carolina Medical Society.

vulsion occurring during the three months preceding its use and to compare the number of these with the number occurring during the first, second and third periods of three months each while the treatment was being given, the doses being different in each of these periods, and further to compare this number with the number occurring during the three months after the treatment was stopped altogether.

The treatment was begun the last week in March, 1913, and forty-nine patients were treated. During January, February and March there were 1,275 convulsions. During April, May and June, the first period of treatment, when 10 minims were given twice weekly, there were 1,640 convulsions. During July, August and September, the second period of treatment, when 10 minims once weekly were given, there were 1,547 convulsions. During October, November and December, the third period of treatment, when 5 minims once weekly were used, there were 1,493 convulsions. The treatment was discontinued some time in February, 1914, and sterile water used in place of the venom so as to retain any psychologic effect there might be, and the number of convulsions during March, April and May was found to be 1,361. This would indicate that not only does the medicine not decrease the number of convulsions, but actually increases them and in direct proportion to the amount given.

As to the effect on the mental condition of the patient, there has been no more improvement in those taking crotalin than in those taking the usual treatment.

It is only fair to state that a large majority of the patients brought to the colony for treatment are in bad shape both mentally and physically, and that many of these improve markedly in these respects after they have had the usual treatment here, while quite a few have fewer convulsions, owing to the regular life, and careful hygienic and dietetic management, together with freedom from worry and irritation from the outside. This effect is obtained in spite of the fact that they get practically no bromids when compared with the amount they receive before admission.

As a result of our observation, it would appear therefore that:

1. The blood of epileptics is less coagulable than that of normal persons, and the coagulability is transiently increased by the use of crotalin.
2. The number of convulsions is increased by its use and in direct proportion to the amount used.
3. Its use seems to have no effect on the mental condition of the patient, all of which is absolutely contrary to the claims of the advocates of the treatment. Its use does, however, to a certain extent, satisfy the abnormal craving for medicine which all epileptics have.

Health as a Social Ideal.—The New Health, as a social ideal, signifies that in our day, because of our new knowledge, our new science of sanitation, our new conscience, our new spirit of brotherhood, our new democracy, our new social intimacy of understanding, we are coming to feel about the public health as our fathers have felt about religion, education, liberty and nationality. We are to feel that health is fundamental and inalienable, that it imposes sacred obligations, calls us to willing service, becomes the object of our constant concern, makes us ashamed of inefficiency, stupidity and graft, because they mean disease, raises us to a new level of brotherhood.—Edward T. Devine, *Journal of Outdoor Life.*

A COMPARISON OF THE WASSERMANN AND LUETIN REACTIONS IN 744 INDIVIDUALS

EDWARD B. VEDDER, M.D.
AND
WILLIAM B. BORDEN, M.D.
Captain and First Lieutenant, Respectively, Medical Corps U. S. Army
WASHINGTON, D. C.

The tests here recorded were performed at the U. S. Soldiers' Home at Washington, D. C., in the course of an investigation to determine the prevalence of syphilis in that institution.

The inmates of the Soldiers' Home are all discharged soldiers who have served twenty or more years in the army, or who have been discharged for some disability incurred in the service. Practically all of the inmates, therefore, suffer from some disability or chronic disease, and the great majority are well along in years, 80 per cent. being between the ages of 50 and 80. There are a fair number of cases of locomotor ataxia, and a considerable number suffering from circulatory disturbances, liver diseases, etc. Under such circumstances it might reasonably be expected that a large proportion of these men would show evidences of having suffered from syphilis. This was, therefore, considered an exceptionally good opportunity to test the relative efficiency of the Wassermann reaction and the luetin test.

Both tests were accordingly performed on as many men at this institution as possible. No selection of cases was made, but all the men in each building were taken in order.

The luetin was furnished by Dr. Hideyo Noguchi of the Rockefeller Institute. The luetin was injected according to the prescribed technic, and three readings were made at weekly intervals thereafter. Double plus was used to indicate a very severe reaction; plus to indicate a strong reaction; plus minus to indicate a slight reaction. Only the double plus and plus reactions were considered to be diagnostic of syphilis.

The Wassermann reactions were performed by one of us at the Army Medical School following the technic described by Captain Craig, M. C.[1] A human heart cholesterin antigen, prepared according to the method of Walker and Swift,[2] was used.

This antigen has been criticized lately by several workers, notably by Thomas and Ivy,[3] who state that many false positives have been reported following the use of this antigen. As it is not within the scope of this paper to discuss the technic of the Wassermann reaction, it will be sufficient to state here our belief that when this antigen is used with a proper technic, it will give no more false positives than other antigens. This opinion is based on 4,588 reactions that have been performed up to date in cases in which the history and clinical symptoms were available as a check, and out of this number of cases, we have so far had only two cases in which a false positive (double plus) has been returned. These were both cases of diabetes. The plus reaction is never considered diagnostic except as corroborative evidence in the presence of a history or physical signs indicating syphilis. We may add that possibly the reason Thomas and Ivy obtained so many false positives with the cholesterinized antigen was that they appear to have used it with only one unit of complement and amboceptor. Most workers have held that two units of complement and amboceptor should be used as a factor of safety. At any rate this was the system in which this antigen was used by Walker and Swift, and it is obviously unfair to the antigen to condemn it as giving false positives after cutting down the hemolytic system to half of that used by Walker and Swift. In our tests, the complement has always been accurately titrated and two units of both complement and amboceptor have been used.

---

[1] Craig and Nichols: Studies of Syphilis, Bulletin 3, War Dept., Office of the Surgeon General, p. 72.

[2] Walker and Swift: A Study of the Addition of Cholesterin to the Alcoholic Extracts of Tissues Used for Antigens in the Wassermann Reaction, Jour. Exper. Med., 1913, xviii, 75.

[3] Thomas, B. A., and Ivy, R. H.: Use of Cholesterinized Antigens in the Wassermann Reaction, The Journal A. M. A., Jan. 31, 1914, p. 363.

The results of this examination are shown in Table 1.

TABLE 1.—RESULTS OF EXAMINATION

Reaction	++	+	±	—	Total
Wassermann	100	56	123	465	744
Per cent.	13.30	7.52	16.53	62.50	
Luetin	45	194	165	340	744
Per cent.	6.04	26.07	22.17	45.70	

Tables 2 and 3 bring out still more clearly the relation between the luetin and Wassermann tests.

TABLE 2.—COMPARISON OF WASSERMANN AND LUETIN TESTS

Wassermann	Luetin ++	+	±	—
100 ++ = ...	8	27	21	44
56 + = ...	6	16	13	21
123 ± = ...	8	26	29	60
465 — = ...	23	125	102	215
744	45	194	165	340

TABLE 3.—COMPARISON OF LUETIN AND WASSERMANN TESTS

Luetin	Wassermann ++	+	±	—
45 ++ = ...	8	6	8	23
194 + = ...	27	16	26	125
165 ± = ...	21	13	29	102
340 — = ...	44	21	60	215
744	100	56	123	465

From these tables it is evident that the Wassermann and luetin reactions do not give corresponding results. The plus reaction to the luetin test, as we read it, may undoubtedly be considered a positive reaction. The plus Wassermann, on the other hand, is very suspicious but not diagnostic unless confirmed by history or physical signs. But even if we count double plus and plus reactions as a positive indication of syphilis for both the Wassermann and luetin tests, and plus minus and negative reactions as negative, it is apparent that while by the Wassermann reaction, we have only 156 positive out of 744, or 20.82 per cent., by the luetin test we have 239 positives out of 744, or 32.11 per cent. The luetin test is, therefore, more delicate than the Wassermann as a routine test in the class of cases that we examined, or else it is giving a number of false positives. We are convinced that the former is the correct explanation from the accumulated experience of other observers as well as our own. We have performed the luetin test on a considerable number of persons in whom syphilis could be excluded and have never obtained a positive reaction. The great majority of the patients in this series who have a positive luetin reaction had some history or physical signs indicating syphilis.

It may further be seen that of 588 cases (465 — and 123 ±) negative by the Wassermann, 182, or 32.6 per cent., of the 588 cases were positive by the luetin test. While of the 505 cases (340 — and 165 ±) negative by the luetin test, 99, or 19.6 per cent., of the 505 cases were positive by the Wassermann. It is therefore clear, providing the results of both the luetin and Wassermann tests as we performed them are accurate and reliable, that these two tests complement each other to a certain extent. In other words, had we used the Wassermann reaction alone, and counted both double plus and plus reactions, we would have found 156 positive, or 20.8 per cent., of syphilis; if we had used the luetin reaction alone, we would have found 239 positive, or 32.1 per cent., of syphilis. But by using both tests, we find 338 positive (156 positive by Wassermann, 239 positive by luetin, minus 57 positive by both tests), or 45.4 per cent., of syphilis.

It is also interesting to note that there were only 57 cases, or 7.66 per cent., that were positive to both tests, while 406 cases, or 54.57 per cent., were negative by both tests, leaving 281 cases, or 37.76 per cent., that were positive by one test but negative by the other.

The latest estimation of the practical value of the luetin reaction by Noguchi[4] confirms the opinions previously expressed, that the Wassermann reaction is much more constant in primary and secondary cases, but that the luetin reaction gives a higher percentage of positives in tertiary, latent and treated cases. Our experience amply confirms the latter statement. Eighty per cent. of the men in this series were between 50 and 80 years of age, and when syphilis was present it was with rare exceptions in the tertiary or latent stages.

It is believed that the use of a cholesterinized antigen renders the Wassermann reaction more efficient, and that a number of undoubted syphilitics who give a negative reaction with other antigens will give a positive reaction with a cholesterinized antigen. But even if this be granted, it is apparent that in tertiary, latent and treated cases, the luetin test is considerably more efficient in detecting syphilis than the most efficient Wassermann reaction. A test of so much value would be of great assistance to the general practitioner, and it is to be hoped that some arrangement may be made whereby a supply of luetin may be made available for general use.

We wish to express our thanks to Dr. Noguchi for his courtesy in supplying us with an ample amount of luetin, and to Lieut.-Col. James D. Glennan, the surgeon at the Soldiers' Home, for the encouragement and cooperation which made this investigation possible.

---

[4] Noguchi, Hideyo: Practical Application of the Luetin Test, New York Med. Jour., 1914, c, 349.

The Medical Schools in Belgium.—The University of Louvain was founded in 1426 and ranked only second to Paris during the middle ages, but it was abolished by the French in 1797. In 1835 it was revived as a Roman Catholic institution. The medical department at the opening of the current year had seventeen professors, including the neurologist, A. Van Gehuchten, and two docents. The medical department of the University of Liége included fifteen professors and six docents. Familiar names on the list are the surgeon, von Winiwarter, Fraipont, Schiffers, Beco and Malvoz. The University of Brussels is the best equipped in Belgium, and among its twenty-five professors and thirty-one agrégés are the surgeon, Depage, who presided over the International Surgical Congress in New York last spring, and Bordet, whose research provided the basis for the Wassermann reaction, etc. The medical faculty of the University of Ghent numbers eighteen and includes Van Ermengem, sponsor of botulism.

THE DIAGNOSTIC VALUE OF THE SPHYGMOMANOMETER IN EXAMINATIONS FOR LIFE INSURANCE*

J. W. FISHER, M.D.
Medical Director of the Northwestern Mutual Life Insurance Company
MILWAUKEE, WIS.

Prior to 1907, little or no use was made of the sphygmomanometer except in clinical cases. Three years ago in a paper delivered before the Medical Directors Association, I said:

> No practitioner of medicine should be without a sphygmomanometer. He has in this instrument a most valuable aid in diagnosis. The sphygmomanometer is indispensable in life-insurance examinations, and the time is not far distant when all progressive life-insurance companies will require its use in all examinations of applicants for life insurance.

TABLE 1.—ACTUAL MORTALITY TO AUG. 1, 1913, AS COMPARED WITH THE EXPECTED, ACCORDING TO THE ACTUARIES' TABLE AND MEDICO-ACTUARIAL TABLE OF MORTALITY IN CERTAIN BLOOD-PRESSURE CASES *

Years	Number of Lives	Actual Deaths	Expected Deaths (Actuaries' Table)	Per Cent. (Actual to Expected)	Expected Deaths (M.-A. Table)	Per Cent. (Actual to Expected)
1907	216	10	19.625	50.96	13.486	74.15
1908	651	31	53.760	57.66	36.386	85.20
1909	957	17	59.302	28.67	38.889	43.71
1910	837	27	39.639	68.11	25.205	107.12
Totals .	2,661	85	172.326	49.33	113.966	74.58

* Mortality of accepted risks with systolic blood-pressure of 140-149 mm. Hg with an average of 142.43 mm. Hg—all ages.

To-day this prediction is practically fulfilled, and no up-to-date practitioner is without this very valuable aid in diagnosis, much of which has been due to the requirements of life-insurance companies in insisting on their examiners using the sphygmomanometer in examinations for life insurance. I have received hundreds of letters thanking me for insisting on its use in examinations for the company and testifying to its very great value in private practice.

TABLE 2.—MORTALITY OF ACCEPTED RISKS WITH SYSTOLIC BLOOD-PRESSURE OF 150 MM. HG AND OVER: AVERAGE 152.58 MM. HG—ALL AGES

Years	Number of Lives	Actual Deaths	Expected Deaths (Actuaries' Table)	Per Cent. (Actual to Expected)	Expected Deaths (M.-A. Table)	Per Cent. (Actual to Expected)
1907	87	8	8.154	98.11	5.726	139.71
1908	212	17	18.812	90.37	13.023	130.54
1909	161	4	12.173	32.86	8.357	47.86
1910	65	4	3.660	109.29	2.419	165.36
Totals .	525	33	42.799	77.10	29.525	111.77

The use of the sphygmomanometer demonstrates in many cases that a supposedly normal person may have an abnormally high blood-pressure and present no symptoms or pathologic changes discoverable by any of our present methods of diagnosis, thereby suggesting a careful study of the case before any symptoms of disease are discoverable, thus rendering the sphygmomanometer a valuable and indispensable aid in diagnosis. Clinicians for some time considered a blood-pressure of 180 mm. Hg as of little significance; now a pressure of 160 mm. is regarded as one that calls for further study of the case, while the statistics presented herewith show that a blood-pressure of 150 mm. Hg gives a higher mortality than an average risk accepted by conservative life-insurance companies, and this covering a period of only a comparatively few years. I am firmly of the opinion that a persistent blood-pressure of 15 mm. Hg above the average for the age of the applicant should at least excite suspicion and call for further careful and painstaking investigation.

TABLE 3.—MORTALITY OF APPLICANTS REJECTED WITH AVERAGE SYSTOLIC BLOOD-PRESSURE OF 161.44 MM. HG—ALL AGES

Years	Number of Lives	Actual Deaths	Expected Deaths (Actuaries' Table)	Per Cent. (Actual to Expected)	Expected Deaths (M.-A. Table)	Per Cent. (Actual to Expected)
1907	46	14	4.816	290.70	3.443	406.62
1908	118	18	10.817	166.40	7.565	237.94
1909	213	22	15.464	142.27	10.509	209.34
1910	221	12	13.250	90.57	8.973	133.73
1911	318	7	10.809	64.76	6.707	104.37
1912	668	9	10.295	87.42	5.589	161.03
1913	386	1	1.749	57.18	.904	110.62
Totals .	1,970	83	67.200	123.51	43.690	189.97

The Northwestern Mutual Life Insurance Company, in the year 1906, in order to test the diagnostic value of the sphygmomanometer in examinations for life insurance, made use of the instrument in its examination of applicants for insurance at its home office. The results were such that in August, 1907, it was deemed advisable to require its use by our examiners in the field who possessed an instrument or could be induced to secure one. The result was that in a number of the larger cities we were enabled to secure its use in examinations for the company. By the first of the year 1912, 90 per cent. of the examiners of the company were using the instrument in their examination of applicants for insurance. At the present time there are very few examiners of the company who do not possess an instrument.

TABLE 4.—MORTALITY OF APPLICANTS REJECTED WITH HIGH BLOOD-PRESSURE (AVERAGE 164.77 MM. HG) AND ONE OR MORE OTHER IMPAIRMENTS

Number of Lives	Actual Deaths	Expected Deaths (Actuaries' Table)	Per Cent. (Actual to Expected)	Expected Deaths (M.-A. Table)	Per Cent. (Actual to Expected)
888	43	32.422	132.63	21.409	200.85

The blood-pressure was required by the company (except in special cases) only at ages from 40 to 60 (the company does not insure persons whose insurable age is over 60). Since November, 1911, it has been required at all ages and irrespective of amount of insurance applied for.

Our company has rejected 405 applicants, up to June 1, 1914, under the age of 40, who had a persistent blood-pressure of 15 mm. or more above the normal for their age, without any other impairment recorded on the blank, and 1,036 (ages 40 to 60), without any other impairment. In my opinion, the results fully demonstrate the value of the use of the sphygmomanometer in examinations for life insurance on applicants under the age of 40. Dr. Cabot[1] makes the statement that "slight increase of systolic blood-pressure is (fortunately for our diagnosis) rarely encountered. As a rule, if we find the blood-pressure high it is very high (160-250 mm. Hg) and not in the more dubious immediate regions (140-160 mm. Hg)." He undoubtedly refers to clinical cases only—persons who are ill and consult physicians for relief. They are not seeking life insurance. The class of cases encountered by the life-insurance examiner are those who have not as yet reached that stage. They suppose they are normal, believe they are in good health, and are seeking life insurance for the protection of their families. We frequently encounter men who are running a very high blood-pressure who declare they are feeling perfectly well and who consider themselves normal in every respect.

---

*Read before the American Association of Medical Examiners at Atlantic City, June 22, 1914.

TABLE 5.—IMPAIRMENTS RECORDED ON APPLICATIONS AT TIME OF MEDICAL EXAMINATION OF THE 888 CASES RECORDED IN TABLE 4

Arteriosclerosis Atheroma	Heart Murmur	Heart Hypertrophy	Albumin and Sugar	Albumin in Urine	Sugar in Urine	Albumin and Casts	Casts in Urine	Nervous Symptoms	Prostatic Disease	Miscellaneous	Total
109	216	53	15	259	37	21	12	30	16	120	888

By reference to Table 1, it will be seen that the company accepted 2,661 risks in the years 1907-1910, with an average blood-pressure of 142.43 mm. Hg at ages 40 to 60, and that the mortality is about the same as the general average mortality of the company for the same period, while Table 2 shows 525 risks accepted in 1907-1910, with an average blood-pressure of 152.58 mm. Hg (an increase of practically 10 mm. Hg blood-pressure over the foregoing), showing a mortality of over 30 per cent. in excess of the general average mortality of the company.

TABLE 6.—MORTALITY OF APPLICANTS REJECTED WITH HIGH BLOOD-PRESSURE ONLY (AVERAGE 159.90 MM. HG)

Number of Lives	Actual Deaths	Expected Deaths (Actuaries' Table)	Per Cent. (Actual to Expected)	Expected Deaths (M.-A. Table)	Per Cent. (Actual to Expected)
1082	40	34.778	115.02	22.281	179.53

Table 3 shows a mortality on 1,970 applicants rejected with an average blood-pressure of 161.44 mm. for the years 1907 to Aug. 1, 1913, with a mortality of 190 per cent. of the medico-actuarial table, which is considerably more than double the average mortality of the company. Table 6 is a record of 1,082 applicants rejected with no other impairment recorded on the blank at the time it was received at the home office. These had an average blood-pressure of 160 mm. Hg. All of these persons would have been granted insurance, with a mortality of more than double the mortality expected, had it not been for the high blood-pressure.

TABLE 7.—IMPAIRMENTS SUBSEQUENTLY DISCOVERED OR DEVELOPED IN THE 1,082 CASES RECORDED IN TABLE 6

Arteriosclerosis Atheroma	Heart Murmur	Heart Hypertrophy	Albumin and Sugar	Albumin in Urine	Sugar in Urine	Albumin and Casts	Casts in Urine	Nervous Symptoms	Prostatic Disease	Miscellaneous	Total
14	29	6	6	136	8	91	38	8	1	18	355

Number of Lives	Actual Deaths	Expected Deaths (Actuaries' Table)	Per Cent. (Actual to Expected)	Expected Deaths (M.-A. Table)	Per Cent. (Actual to Expected)
355	15	12.600	119.05	8.184	183.28

It should be stated that the company's average mortality is only 80 per cent. of the medico-actuarial table. The mortality in connection with the number of deaths which have occurred since August last, to date, in Tables 2 and 6, has not been computed, as it was found that it would not materially change the ratio. Five additional deaths have occurred in Table 2 and twelve additional in Table 6.

TABLE 8.—MORTALITY OF APPLICANTS REJECTED UNDER AGE 40—HIGH BLOOD-PRESSURE ONLY (AVERAGE 151.19 MM. HG)

Ages					Total	Actual Deaths	Expected Deaths (Actuaries' Table)	Per Cent. (Actual to Expected)
Under 20	20 to 25	25 to 30	30 to 35	35 to 40				
6	43	56	52	84	241	2	2.108	94.88

We have received but little diagnostic value in our work from the low pressure. Occasionally a low blood-pressure with a marked tuberculous family record leads us to decline a risk. We are, however, tabulating the risks accepted with a pressure of 100 mm. or less. We seldom insure a risk with a reading below 85 mm. Hg.

TABLE 9.—IMPAIRMENTS SUBSEQUENTLY DISCOVERED OR DEVELOPED IN THE 241 CASES RECORDED IN TABLE 8

Arteriosclerosis Atheroma	Heart Murmur	Heart Hypertrophy	Albumin and Sugar	Albumin in Urine	Albumin and Casts	Casts in Urine	Miscellaneous	Total
1	6	1	1	36	12	5	1	63

The same may be said of the diastolic pressure. We record it, however, in our examinations at the home office and require it of most of our examiners in the larger cities. As to what diagnostic or prognostic value may be attached to it, the future will reveal when our data are tabulated.

---

[1] Cabot: Physical Diagnosis, Ed. 5, 1912.

The mortality on the rejected risks as shown in the tables is undoubtedly much lower than the exact figures would show, were it possible to secure a record of all deaths. When the risk is not insured in this or other companies, we must depend on the solicitor and medical examiner to notify the company of the death of those risks which we rejected with a high blood-pressure.

The blood-pressure should be taken with the person in a sitting posture, with the arm resting on a table or other convenient rest, which will relax the muscles, at the completion of the applicant's declaration, and before the physical examination is begun, and again after the physical examination is complete. At least two, or better, three readings should be made at each test, and the average of all recorded on the blank.

TABLE 10.—CAUSES OF DEATH IN RISKS ACCEPTED (TABLE 2) AND RISKS REJECTED (TABLE 3)

	*Accepted**	*Rejected†*
Anemia, pernicious	..	1
Aneurysm, aorta	..	1
Angina pectoris	1	3
Apoplexy	4	18
Appendicitis	2	2
Arteriosclerosis	1	10
Cancer	2	3
Cerebrospinal meningitis	1	..
Cirrhosis of liver	..	2
Consumption	..	1
Diabetes	..	2
Duodenal ulcers	2	..
Gall-stones	3	2
Heart disease (organic)	4	16
La grippe	1	..
Locomotor ataxia	..	1
Nephritis	3	16
Paralysis	..	2
Peritonitis	..	1
Pneumonia	3	..
Prostatic hypertrophy	1	..
Railway accident	1	..
Rheumatism (acute)	2	..
Stokes-Adams disease	..	1
Suicide	2	1

* Average blood-pressure of those who died was 152.42 mm. Hg.
† Average blood-pressure of those who died was 172.93 mm. Hg.

TABLE 11.—THE AVERAGE SYSTOLIC BLOOD-PRESSURE ACCEPTED RISKS, AGES 15-60*

Ages	Number	Mm. Hg of Pressure	Average Blood-Pressure
15-20	281	33,679	119.85
21-25	785	96,365	122.76
26-30	791	97,805	123.65
31-35	689	85,258	123.74
36-40	2,111	268,005	126.96
41-45	6,740	866,518	128.56
46-50	4,471	583,795	130.57
51-55	2,371	313,282	132.13
56-60	1,100	148,261	134.78
Totals	19,339	2,492,968	128.91

*Compiled from 15,014 records of *this company* and 4,325 records of the Mutual Benefit Life Insurance Company.

Many of our examiners furnish us with both the palpatory and auscultatory readings. A difference of about 6 mm. higher in the latter method will be shown.

A high blood-pressure is found in about 6.5 per cent. of all applicants declined for insurance by the company.

"The Partisan of Truth Alone."—I avow myself the partisan of truth alone; and I can indeed say that I have used all my endeavors, bestowed all my pains on an attempt to produce something that should be agreeable to the good, profitable to the learned and useful to letters.—William Harvey.

THE NEUROLOGIC EXAMINATION OF MENTAL CASES *

JULIUS GRINKER, M.D.
CHICAGO

At this moment when the light of rational medicine is beginning to penetrate into the darkest corners of psychiatry, when chemical and biologic laboratories are uniting to displace the new psychosexual philosophy, it is most timely to make a plea for the thorough physical examination of the mentally afflicted. To just the extent that one whiles away precious time in deciphering dreams and reveling in the free associations of interesting neurotics, does one fail to learn all that can be known of a patient's physical constitution. If we are to achieve therapeutic and diagnostic success, the physical investigation of the insane must receive at least as much attention as, for instance, the devotee of the new psychology gives to psychanalysis.

That even competent observers may occasionally fail to recognize true neurologic conditions has been conclusively shown by E. E. Southard, who analyzed sixty-one cases in which the diagnosis of general paresis was made, forty-one of which were considered clinically certain and agreed to by all of the staff members at the Danvers State Hospital, while six were cases that had been wrongly diagnosed, the essential histologic features of general paresis having been absent. In place of these he discovered the changes of meningomyelitis, subcortical encephalitis, tabes with non-paretic cerebral disease, arteriosclerotic brain disease with involvement of the cerebellum, and cerebellar sclerosis. Instances abound in the literature and the unpublished cases are even more numerous—in which competent men have missed the neurologic diagnosis in a supposedly mental case, because no importance was attached to what seemed to them insignificant neurologic symptoms. It appears that in those cases the mental picture had completely overshadowed the neurologic aspect.

Though it is possible for even the most skilled examiner to mistake a neurologic disease for a case of frank insanity, the mistaken diagnoses are usually made by those who neglect the neurologic examination entirely. Of prime importance is it, therefore, to keep in mind the necessity for these examinations in all forms of mental disease. Since a neurologic examination has become part of the routine examination of every new arrival to an institution for the insane, it may appear unnecessary to plead for one. But every one who has had the privilege of witnessing such institution examinations can testify to their incompleteness, and these are not infrequently the only examinations made of the patient during his entire stay at the hospital. Unfortunately, the record made at a patient's entrance is seldom again referred to for the purpose of making additional notations.

The important organic nervous diseases not infrequently mistaken for insanity are brain tumor, cerebral arteriosclerosis, syphilis and non-specific vascular brain disease. Of the so-called functional nervous disorders not rarely diagnosed as insanity in private practice may be mentioned drug addictions, postinfectious and post-traumatic deliriums, and the psychoneuroses.

An error most humiliating to the physician and fraught with possible harm to the patient is the mistaken diagnosis of insanity in a case of brain tumor. Even after a thorough examination one may overlook the mental symptoms of a case of brain tumor, but it is next to impossible to give a patient a neurologic examination and then to diagnose a case of brain tumor as one of insanity. Knapp of Boston, in his statistical review, "The Mental Symptoms of Cerebral Tumor," informs us that not infrequently patients who were considered only insane have died from brain tumor. "The mental syndrome during life was so pronounced," says he, "that neurologic symptoms had been overlooked, until the post-mortem examination revealed the presence of neoplasm." Of the 104 cases from the literature which he had collected, there were mental disturbances sufficiently marked to attract attention in seventy-nine, a trifle over 75 per cent. of the cases. Schuster of Berlin, from a similar study of 775 cases culled from various sources, found a condition of simple mental weakness, dulness, somnolency and dementia in 423 cases, while 352 cases presented some active symptoms of mental disorder, among which he mentions those of general paresis, chronic paranoia, melancholia, Korsakoff's psychosis, hallucinatory delirium, circular states, mental weakness with excitement, senile dementia, and a number of minor types of insanity. In these cases it was noted that mental symptoms were more prevalent in left-sided brain tumor and that the larger the growth, the more pronounced were the symptoms. Further, he believes that tumors situated in the corpus callosum and frontal lobes are capable of producing mental symptoms which have a close resemblance to simple dementia. Tumors presenting the syndrome of general paresis with or without the delusions of grandeur have also their probable localization in the frontal lobes. Though some authors dispute the view that the frontal lobes are the seat of the higher psychic functions, the majority still favor this view, while it is generally admitted that the frontal lobes are not the only psychic centers. Since Monakow has so plausibly explained many of the otherwise inexplicable somatic brain symptoms by the theory of diaschisis, we may reasonably assume that coordinate intellectual function is likewise conditioned by the harmonious cooperation of several widely separated centers in the brain, each of which is capable, when diseased, of throwing out of commission the entire mental machinery. Thus, it appears that the occipitotemporal region, the zone of language, and the corpus callosum constitute important contributory streams to the higher mental life which has its fountain head in the frontal lobe.

---

* Read before the joint meeting of the Chicago Neurological Society and the Illinois State Hospital Society, Jan. 29, 1914.

This simple enumeration of the variously localized brain tumors capable of simulating true insanity may suffice to impress one with the importance of making careful search for the well-known tumor syndrome in every case of supposed insanity.

To mistake Korsakoff's psychosis for general paresis or confusional insanity is easy; but to commit this error after an examination of the reflexes, sensation and motion, is almost unbelievable.

That vascular brain disease, before and after the insult, is capable of producing the most manifold symptoms, some of which mimic the well-known syndromes of the classical psychoses, is familiar to all. To take the blood pressure, examine the urine and inspect the retinal vessels is equivalent to avoiding some hard falls.

With the advent of salvarsan therapy the differentiation between the non-specific psychoses and those produced by brain syphilis has assumed practical importance. Thanks to the laboratory which has furnished us the "four reactions" and a gold-sol test, we are now in a better position to diagnose syphilitic nervous disease than formerly, but we must be ever mindful that the laboratory still is, and probably always will remain, the handmaid of the clinician.

In referring to the functional disorders which occasionally assume the mask of true insanity, we may state that the drug-addictions, including alcoholism, easily lead the rest. Mention must also be made of the postinfectious and posttraumatic deliriums as well as the psychoneuroses.

In a recent paper Alfred Gordon states that from his study of 171 cases he came to the conclusion that the chronic forms of opium and cocain poisoning resemble many forms of insanity. He finds that "some cases simulate melancholia, mania, manic-depressive insanity and even catatonia, though none of them give the typical pictures of these psychoses. Among the well-recognized symptoms of those drug-intoxications are hallucinations of sight and hearing. While the delusions of this type are mostly transient, fleeting and fragmentary in character, at certain periods of their evolution they may assume the form of systematized delusions, reinforced by hallucinatory images. Thus, some of them may present a picture closely allied to paranoia. A characteristic symptom is the gradually oncoming dementia which develops insidiously and increases with years, until a complete psychic decrepitude is established."

Though many of the insanities have alcoholic excess as an important contributing causative factor, there are several types of psychoses which appear to be produced entirely by chronic alcoholism. Because of their resemblance to other well-known forms of insanity, they are spoken of as alcoholic paranoia, pseudoparesis, etc. In most cases the careful search for somatic evidence, past or present, of the stigmata of chronic alcoholism will lead to a correct diagnosis, while the disregard of a physical and neurolgic examination often avenges itself by complete failure. As the ultimate prognosis of even moderately advanced alcoholic psychoses is infinitely better than for instance that of dementia praecox, paranoia or arteriosclerotic dementia, the timely recognition of the alcoholic character of a psychosis is an advantage of no mean value.

Most gratifying to the clinician are the cases of acute insanity following trauma or infection, provided a correct etiologic diagnosis has been made. Not a few of these patients can be treated at home. Much damage both to patient and physician has resulted from mistaking such curable psychoses for the incurable ones. Likewise many a case of psychasthenia, hysteria and even neurasthenia has been diagnosed as insanity, because of the examiner's predilection for short cuts.

In conclusion I may be permitted to repeat Charcot's statement that more mistakes are made by not examining than by not knowing.

Heredity.—An infection, an habitual intoxication of the parents, a maternal disease during pregnancy, can determine perversion of development, which though so slight and uniform as to be quite unobservable at birth, comes to the surface with the progress of years in the shape of unexpected failures of certain fundamental functions of intelligence, of eccentricity of character and of perversion.—Lugaro, Problems in Psychiatry.

BLINDNESS, CAUSED BY OPHTHALMIA NEONATORUM *

RICHARD J. TIVNEN, M.D.
CHICAGO

The part played by ophthalmia neonatorum in producing blindness is a sadly conspicuous and leading one. It enlists our sympathetic interest because its victims are, in the vast majority of instances, the "little ones," who are powerless to prevent its occurrence and powerless also to make known the early manifestations of a disease which is destroying their sight. In consequence of its ravages, the lives of these defenseless unfortunates are blighted irrevocably, and they are forever consigned to a future of unending darkness. No writer can be charged with unseemly reiteration, no medical tongue accused of boresome repetition, no matter how often or how insistently he dwells on this painful, humiliating truth, namely, that the vast majority of these little ones could have been spared their sad affliction if only the simplest elementary precautions had been observed at the proper time.

Statistics are numerous, indicating the frequency and the proportion of blindness caused by the disease. A study of these, collected by different observers, warrants the conclusion that one-eighth of blindness from all causes is due to this disease, and one-fourth of the blindness among children is attributable to the same cause.

A comparison of statistics from different sources is shown by Tables 1 to 6.

The "Special Reports on the Blind and the Deaf, 1900, Department of Commerce and Labor, Bureau of the United States Census," present the following statistics and comments:

> Excluding congenital statistics and injuries, accidents and operations, there are 2,556 who lost sight after birth, but under 1 year of age, and in 644, or 25.2 per cent. of these cases, the cause of blindness was probably ophthalmia neonatorum, or "babies' sore eyes," since other diseases of the eye causing blindness under 1 year of age are extremely rare. The importance of these figures lies in the fact that

TABLE 1.—CENSUS RETURNS (ENGLAND AND WALES), 1901

(Harman: Preventable Blindness)

Sex†	1891	1901	Condition as to Marriage, 1901		Ages Under 5	5-10	10-15	15-20	20-25	25-35	35-45	45-55	55-65	65-75	75-85	85,over
			The Blind													
♂	12,281	13,136	Single	5,583	280	373	590	611	573	949	747	553	439	290	151	27
			Married	5,360	...	...	...	...	30	372	854	1,133	1,262	1,053	576	80
			Widowed	2,193	...	...	...	...	...	8	55	157	417	658	685	213
♀	11,186	12,181	Single	5,563	201	296	488	455	503	863	709	621	532	466	335	94
			Married	2,525	...	...	...	1	14	181	322	525	636	60	257	29
			Widowed	4,093	...	...	...	...	...	13	63	239	624	1,262	1,439	453
Total	23,467	25,317														
			Blind from Childhood‡ (Included in Foregoing)													
♂	2,194	2,468	Single	2,028	280	373	216	264	220	310	185	81	57	31	11	...
			Married	389	...	...	...	...	7	89	110	91	61	23	7	1
			Widowed	51	...	...	...	...	...	...	10	11	12	9	8	1
♀	1 811	2,153	Single	1,954	201	296	164	188	192	332	217	178	99	56	26	5
			Married	143	...	...	...	1	6	41	37	37	14	7	...	...
			Widowed	56	...	...	...	...	...	...	7	10	21	12	5	1
Total	4,005	4,621														

† In this column ♂ denotes males, and ♀ females.
‡ One-third of patients "Blind from Childhood," were blinded by ophthalmia neonatorum (approximately 1,500).

TABLE 2.—PROPORTION OF CASES OF OPHTHALMIA NEONATORUM IN DISEASES OF THE EYE

Illinois Charitable Eye and Ear Infirmary, Chicago

(Years 1909-1910)

(Reports Illinois Charitable Eye and Ear Infirmary, Chicago, 1909-1910)

Total cases eye diseases treated	10,361
Total cases ophthalmia neonatorum	145
Percentage of ophthalmia neonatorum	1.30

Massachusetts Charitable Eye and Ear Infirmary, Boston

(Year 1913)

(Reports Massachusetts Charitable Eye and Ear Infirmary, Boston, 1913)

Total cases eye diseases treated	28,652
Total cases ophthalmia neonatorum	298
Percentage of ophthalmia neonatorum	1.04

Manhattan Eye, Ear and Throat Hospital, New York

(Year 1913)

(Reports Manhattan Eye, Ear and Throat Hospital, New York, 1913)

Total cases eye diseases treated	21,280
Total cases ophthalmia neonatorum	72
Percentage of ophthalmia neonatorum	0.3

New York Eye and Ear Infirmary, New York

(Years 1912-1913)

(Reports New York Eye and Ear Infirmary, New York, 1912-1913)

Total cases eye diseases treated	24,922
Total cases ophthalmia neonatorum	20
Percentage of ophthalmia neonatorum	0.08

TABLE 3.—COMPARATIVE TABLES SHOWING BLINDNESS CAUSED BY OPHTHALMIA NEONATORUM

(Norris and Oliver: System of Ophthalmology, iii.)

	Cases	Per Cent.
Magnus' table of 2,528 cases of blindness in Germany: *Ophthalmia neonatorum* caused blindness in	275	10.876
Trousseau's table of 625 cases of blindness in France: Ophthalmia neonatorum caused blindness in	29	4.60
Oppenheimer's table of 572 cases of blindness in the United States: Ophthalmia neonatorum caused blindness in	18	3.10

TABLE 4.—THE CAUSES OF BLINDNESS IN LONDON SCHOOL-CHILDREN

(Harman: Preventable Blindness)

(Based on 362 Cases)	Per Cent.
Congenital defects	25.34
Ophthalmia of new-born	36.36
Congenital syphilis	17.60
Optic atrophy	9.36
Purulent ophthalmia	2.20
Small-pox	0.82
Sympathetic ophthalmia	2.75
Phlyctenular ophthalmia	1.95
Malignant disease	0.27

TABLE 5.—STATISTICS GATHERED BY VARIOUS WORKERS OF BLINDNESS PRODUCED BY OPHTHALMIA NEONATORUM

(Harman: Preventable Blindness)	Per Cent.
Reinhard, Germany, Austria, Denmark, Holland	40
Claisse, Paris	46
Magnus, Breslau	34
Katz, Berlin	41
Compare with L. C. C. blind schools	36.36

TABLE 6.—CASES OF OPHTHALMIA NEONATORUM FROM THE MASSACHUSETTS CHARITABLE EYE AND EAR INFIRMARY

(Massachusetts Charitable Eye and Ear Infirmary Reports, 1913)

Year	Number Under Observation	Number Made Partially Blind	Per Cent.
1907-1908	46	12	26
1908-1909	116	29	25
1909-1910	119	13	10.9
1910-1011	107	11	10.2
1911-1912	108	9	8
1912-1913	142	23	16

---

* Read at a joint meeting of the Chicago Medical and Chicago Ophthalmological societies in a "Symposium on Preventable Blindness," May, 1914.

this disease, which is very malignant and which attacks the infant at birth or immediately after and almost always results in total destruction of the sight—usually of both eyes—or in very seriously impaired vision, is now considered preventable, and if proper measures had been instituted at the time of birth, few or none of these cases would have occurred. It is not pertinent in this connection to discuss the means of prevention, which are well known; but it can at least be pointed out, with emphasis, that the so-called "sore eyes" of babies is a highly dangerous affection, and that its treatment should be prompt and energetic and carried out by a thoroughly competent person.

The New York Association for the Blind in a pamphlet[1] on this subject says:

> The official census of the blind for the state of New York, taken in 1906, gives a total of 6,200 blind persons in the state. Of these the cases of preventable blindness numbered 1,984, or 32 per cent., of the whole. And of these preventable cases there are 620 classified as blindness caused by ophthalmia neonatorum, or 10 per cent. of the whole number of blind persons in the state of New York. This means that to-day there are over 620 blind persons in this state who would never have been blind had a harmless preparation (Credé's method) been put into their eyes when they were born.

From the same instructive pamphlet Tables 7 and 8 are taken.

Table 7 shows the number of new pupils admitted into ten of the principal schools of this country during the year 1907, and the proportion of those admitted who had lost their sight from ophthalmia of the new-born.

TABLE 7.—NEW PUPILS IN 1907 BLIND FROM OPHTHALMIA

Schools for the Blind	New Admissions	Ophthalmia of New Born	Per Cent.
N. Y. State School for the Blind, Batavia, N. Y.	13	4	30.76
Penn. Institute for the Blind, Overbrook, Pa.	27	9	33.33
Perkins Institute and Mass. School for the Blind, Boston	43	13	30.23
Colorado School for the Blind, Colorado Springs	7	3	42.85
Western Penn. Institute for the Blind, Pittsburgh	28	8	28.57
Missouri School for the Blind, St. Louis.	19	6	31.57
Conn. State Board of Education for the Blind, Hartford	8	1	12.50
Ohio State School, Columbus	36	7	19.44
Maryland School for the Blind, Baltimore	13	4	30.76
Ontario Institute for the Blind, Brantford, Ont.	23	5	21.73

The average of new admissions in these ten schools for the blind shows that 28.14 per cent. were victims of ophthalmia of the new-born. More than one-quarter of the new pupils admitted during 1907 were therefore needlessly blind.

Table 8 shows the admissions for eight years, 1900-1907, to one school, the Pennsylvania Institute for the Blind, at Overbrook, Pa., and the percentage of pupils admitted each year who had lost their sight from ophthalmia neonatorum.

TABLE 8.—PUPILS BLIND FROM OPHTHALMIA ADMITTED TO PENNSYLVANIA SCHOOL FOR THE BLIND

Year		Per Cent.
1900	11 out of 25 =	44
1901	10 out of 28 =	35
1902	9 out of 39 =	23
1903	14 out of 50 =	28
1904	15 out of 58 =	25
1905	21 out of 42 =	50
1906	12 out of 38 =	31
1907	9 out of 34 =	26
1908	11 out of 29 =	37
1909	15 out of 34 =	44

Average for ten years 33.68 plus per cent. needlessly blind.

It is instructive also to note the statistics given in this pamphlet relative to the activity of midwives in obstetric practice:

> In Chicago, in 1904, we find 86 per cent. of all births, principally among Italians, reported by midwives. In Buffalo, N. Y., with a population of about 400,000, nearly one-half of the births, in one year, were attended by midwives. In New York City, in 1905, 43,834 births, or 42 per cent., of the whole number, were attended by midwives, employed largely by Italians, Austro-Hungarians, Polish Jews and other immigrants. For the year 1907, in New York City, there were 68,186 births reported by physicians, and 52,536 reported by midwives. In September, 1908, the registered midwives in the five boroughs of New York City numbered 1,382.

The author of these reports well concludes:

> In the face of these figures it is idle to talk of the elimination of the midwife. . . . Let us see to it that our midwives are trained, controlled and made fit for the responsible duties they undertake to perform.

The economic side of the question is likewise a matter of considerable moment. It is estimated that it costs the state $3,000 to educate a blind child. The proper equipment and maintenance of blind schools, etc., likewise require a considerable expenditure. To these sums may be added the loss to the individual in earning capacity, the curtailing of "avenues of-opportunity," etc., which his affliction necessarily imposes.

The disease itself—its etiology, pathology, clinical course and treatment—while not properly within the scope of the present consideration, may be given a brief reference.

Ophthalmia neonatorum is an acute purulent conjunctivitis occurring in the new-born. The cause of the infection is the gonococcus of Neisser. Bacteriologic examination has demonstrated that cases occurring before the end of the third day are almost always due to the neisserian infection. Later infections are usually produced by the Koch-Weeks bacillus, the pneumococcus, the Klebs-Loeffler bacillus, etc.

It is generally admitted that infection, as a rule, takes place from the vaginal secretion of the mother entering the conjunctival sacs during the period of the passage of the child's head along the genital tract. Ante-partum infections are recognized as of rare occurrence; post-partum infections from soiled linen, etc., also occur.

The appearance of an eye suffering from ophthalmia neonatorum varies according to the stage of the infection. At the outset, the conjunctiva is reddened; by the third day the lids are glued together with mucopus, the lids become swollen, and as the process develops, the discharge changes to a copious, creamy pus; the ocular conjunctiva becomes greatly swollen, and difficulty is experienced in separating the lids; the cornea may become hazy and ulcerated; gradually the process subsides, the swelling and discharge diminish, and the disease passes into a subacute stage.

The distinguishing characteristics of the disease are the swollen condition of lids and conjunctiva, and the purulent discharge. Corneal involvement, with its sequelae, is the danger that threatens the integrity of the visual function. It may be accepted as an axiom that a discharging eye is always a dangerous eye; and in the case of an infant, such a discharge occurring within the early days following its birth demands prompt identification and energetic treatment.

As far as the treatment of the disease itself is concerned, the recognized procedures all have this in common, namely, to negative the action of the invading organism, to keep the eye freed from the purulent secretion, to anticipate corneal involvement, to assist the reparative process and prevent the spread of the infection.

---

[1] New York Association for the Blind, Special Committee on Prevention of Blindness.

The greatest field of opportunity, however, lies in the prevention. To accomplish the highest degree of success in this direction two important factors must be carried out: first, the utilization of prophylactic measures; second, early recognition and prompt treatment of the disease.

As to prophylactic measures, obstetricians advise—as a routine procedure—the rendering of the genitals and genital tract aseptic by suitable measures; and such procedures, it is recognized, may prove of especial importance in preventing an infection.

The value of the Credé method as a prophylactic measure is generally admitted. At birth the child's eyes are gently cleansed and one drop of 2 per cent. solution of silver nitrate instilled into each eye. Credé, at the Leipsic Lying-in Asylum, had averaged 10.8 per cent. of cases of ophthalmia; after the introduction of this prophylactic method he found that the infections were reduced to from 0.1 to 0.2 per cent.

If this method of prophylaxis were in universal use, it is certain that the proportion of ophthalmia neonatorum cases would be greatly reduced; and if, in conjunction with the method, practical measures might be devised to insure the early recognition and early treatment of the disease, it is not unreasonable to assert that such infections might be almost entirely eradicated.

A survey of the foregoing facts, which embody the observations and the views of numerous earnest workers in this humanitarian field, causes one to pause and reflect on the colossal problem of prevention which is presented. The committee of the Chicago Opthalmological Society is determined to do what little it may in ameliorating the conditions and, if possible, inaugurate in the state of Illinois a practical campaign of prevention.

A cursory study of the situation discloses many perplexing problems which only patience, perseverance, discretion and cooperation may overcome. The plan proposed and carried out by the New York Association for the Blind appeals to our committee as one most likely to accomplish the largest measure of success, and at present we are engaged in attacking the problem along the lines suggested.

This plan is described by the New York Association for the Blind as follows:

> The methods of work for the suppression of infant ophthalmia may be divided into the following groups:
>
> 1. Educational.
> 2. Legislative.
> 3. Cooperative.
>
> *Educational.*—Through the preparation, publication and dissemination of printed matter, emanating from the committee or approved by it; through public lectures, addresses and exhibits; and by means of the press, on whose generous assistance the committee greatly relies.
>
> The object sought is to spread among the general public the knowledge that infant ophthalmia is a dangerous, infectious disease, fatal to sight unless checked at the time of the birth of the child, easily preventable then if simple precautions are taken; to inform parents, more especially, of the dangers which threaten the sight of their children at birth, and the preventive measures which should be taken; and to advocate the universal adoption of such measures.
>
> *Legislation.*—To promote such legislation as may be needed to accomplish the object in view—the prevention of the unnecessary blindness of infants.
>
> *Cooperation.*—In furtherance of the same object, the committee seeks and invites cooperation with medical societies, health officers, ophthalmic, maternity and other hospitals in which children are born, dispensaries, city missions, settlements; with schools, institutions and associations for the blind, and with all societies engaged in work for children and for social betterment; with district visiting nurses, and with all persons who are already engaged in this work or who desire to help in it.

The foregoing "plan of campaign" appears logical and practical, and in conducting the work along these lines our committee is sanguine that a measure of success will be attained which shall serve to place our own state in a creditable position on the question of the prevention of blindness due to ophthalmia neonatorum. Even a small measure of success will be a distinct accomplishment, and will contribute a not inconsiderable part toward sparing many little ones the sad ravages which this baneful disease inflicts.

104 South Michigan Avenue.

MANAGEMENT OF DELICATE AND PREMATURE INFANTS IN THE HOME*

H. M. McCLANAHAN, M.D.
OMAHA

The premature or delicate infant has an equal right to life with the robust. Indeed, its frail condition should insure it every possible care, since because of its feebleness its life's prospect is not nearly so good. While I have no available data, such at least is my personal experience. The fact that I have seen several striking examples of the possibilities of saving the lives of some of these cases and believe that not sufficient care in their management is practiced, is my excuse for presenting this brief paper.

The two general requirements in the care of premature infants are the maintenance of body heat, and proper nourishment.

I. THE MAINTENANCE OF BODY HEAT

In order to sustain life, body heat must be maintained and also the rapid dissipation of heat prevented. Heat is given off from the body by the excretions and feces and urine, by the lungs in the form of vapor, and from the skin. Vierordt states that 73 per cent. of body heat is eliminated by radiation and conduction from the skin. This heat loss can be greatly limited. My experience in a number of cases with the modern incubator has not been satisfactory. The infants live a few days and then die even when they are not losing weight. For the last several years I have adopted the following method. It is not at all original and the method is described in some of our modern text-books.

I direct that an ordinary clothes-basket 24 inches long be procured. This can be purchased in any village. The bottom is padded so that the basket has a depth of 8 inches. It is then lined with white oilcloth and over this a layer of cotton batting held in place by being stitched through the sides of the basket. This in turn is covered with white flannel. The flannel covering for the basket is fastened over the top by means of safety-pins so that the upper portion can either be turned back or fall about the neck of the infant, leaving the body surrounded by an air-space.

---

* Read before the Section on Diseases of Children at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

Heat is maintained by means of hot-water bottles. I always direct that these be covered by flannel. The 12-ounce citrate of magnesia bottle is convenient, as it has a rubber cork and a wire fastener that insures against leaking. Five of these bottles are sufficient to maintain proper temperature. A thermometer is kept in the basket and the heat maintained at from 90 to 95 degrees. During the night when the room temperature is lower it may be necessary to cover the basket with a rubber sheet in order to maintain the temperature. It will be noted that while the body is in a warm atmosphere the face is exposed so that the infant breathes the atmosphere of the room. As the room can be well ventilated it breathes, I think, a better air than when confined in an incubator.

The body of the infant is anointed with olive-oil, wrapped in a layer of cotton batting—loosely applied—and this in turn in a soft flannel blanket. The infant can be fed in the basket without being removed. Indeed, it need be taken out only when it is necessary to oil the body. Absorbent cotton pads can be used for napkins.

As soon as the infant begins to gain in weight the temperature of the basket can be lowered and in my experience in from two to three weeks the hot-water bottles can be dispensed with.

II. NOURISHMENT

This is vitally important because of the caloric needs of the infant. Breast-milk of course is the best food, but as emphasized by Drs. Holt and Morse, breast-milk should be diluted. Many of these infants are not strong enough to draw milk from the breast and there is no doubt in my mind that physicians and attendants are frequently deceived in believing that because the infant takes the breast it is getting nourishment. Only recently I was able to demonstrate to the attendant by weighing the infant before and after a breast-feeding that there was no appreciable gain in weight. In these cases the milk should be pumped from the breast regularly, diluted with an equal quantity of water, and fed to the infant. If it does not retain this dilution then the milk should be further diluted. Whatever dilution the infant takes, the food should be rapidly increased in strength. There are cases in which the infants are not strong enough to nurse from the bottle and in these cases some other method must be adopted. In these cases I have found the Breck feeder a life-saving appliance. At the Child-Saving Institute this method of feeding is frequently employed with normal infants who refuse to take the bottle. It seems to me superior to the medicine-dropper and certainly requires less skill than gavage.

For the first two or three days at least, food should be given every hour; after this the feeding interval should be lengthened. When it is not possible to procure breast-milk, then the feeding becomes very important. In two recent successful cases I began with the following:

Whey	5 parts
Water	5 parts
Milk-sugar	1 part
Lime water	1 part

In one of the two cases the infant vomited this food. I directed that the whey be made from skimmed milk, when it retained its food. As soon as it retains this formula nicely, the strength should be increased by the addition of either milk or cream.

CONCLUSIONS

1. The premature or delicate infant may develop into a strong individual. I have in mind three of these cases. One patient was normal in weight at 5 months. The other I had the privilege of examining at the age of 3 years. It was in every way a normal child. The third is now a young man in his twentieth year. He is normal physically and above normal in his intellectual attainments.

2. Among dangers to be guarded against are the regurgitation of food in the throat and the suction into the larynx. I have seen one fatal case from this cause. Temperature should be taken in order to guard against fever. In a recent case that I saw with the physician, the temperature reached to 105, due as I believe to the excessive external heat. In every case a thermometer should be kept constantly in the basket. The most frequent mistake, however, is letting the infant take the breast and assuming that it is actually getting food, or if it vomits assuming that the breast-milk does not agree with it.

3. Finally, the hopeful symptoms are a gain in weight and normal yellow stools.

Brandeis Building.

ABSTRACT OF DISCUSSION

DR. HENRY DWIGHT CHAPIN, New York: I wish to emphasize what Dr. McClanahan has said concerning incubators. I treated about 150 babies in different incubators and almost all of them died. While we gain in one factor, that is, heat, we lose in a vital factor, and that is fresh air. Most of them do not deliver sufficient fresh air to the infant, and these premature infants are unusually susceptible to lack of air. I think incubators should be abandoned entirely. I have used such appliances as Dr. McClanahan suggests. In the hospital I have two modern incubators but I do not use them. These premature infants have great difficulty in swallowing. Some of them are so difficult to feed I have been obliged to resort to gavage. I have saved one or two that I am sure would have otherwise been lost, by feeding in this way. One or two have died suddenly. Necropsy showed food had gone into the larynx. The nurse must be warned about slow feeding with any kind of a feeder.

DR. JOHN ZAHORSKY, St. Louis: Most of us who have had experience with expensive apparatus for warming babies have discontinued its use. One method is valuable in the ordinary home; that is, to use an ordinary soap-box, and an ordinary steam or hot-water radiator, and put the box with one side to the radiator so that the heat from it will pass into the box. The heat can be regulated by putting the box nearer or farther away from the radiator. This method can be used with the ordinary stove, with which, of course, someone will have to see that the fire is uniform. The distance will regulate the amount of heat the baby gets. Especially are mistakes made in the amount of heat to which the baby is subjected. Some nurses seem to think the warmer the baby is kept the better. The most common injury to the baby is from too much heat, which will produce injury that it may take a few days to overcome. It often produces cyanosis and death. A good rule is not to keep the temperature over 90. From 86 to 88 is usually sufficient. Watch the baby's rectal temperature, and if it goes lower than 96 degrees do not heat the incubator but warm the baby with a hot bath. Heating by hot air is a slow process. Most premature babies that are not sickly in any way die of exhaustion because they are not sufficiently fed. After the third or fourth day they get attacks of cyanosis, which means exhaustion of the respiratory center. In some way the baby must get enough food or it will die. The premature baby should have one-fifth of the body-weight in mother's milk daily. Commence on one-twentieth of the body-weight the first day—do not wait three days as we do with the normal baby, but commence to feed at once. It has no reserve store to sustain life. Every day the amount should be increased until it reaches one-fifth of the body-weight. It is best given with a dropper, a spoon, or, as Dr. Chapin has emphasized, with a catheter. One may get it down in six feedings, or it may take ten, twelve or even twenty-four, but the baby must receive one-twentieth of its body-weight during its first twenty-four hours.

L. R. DeBuys, New Orleans: The principal problem we have is to maintain the body temperature, and in doing this we have to be careful not to get it too high. A plan I have used is to make a gown of two layers of Canton flannel with one layer of cotton batting between. The baby is put in this and the warmth put externally—either hot bottles or hot-water bags. Covering all is a blanket. Another point that has not been mentioned is the placing of a thermometer inside the top covering and external to the baby's gown, to which it is pinned. You can tell then whether you are giving the baby enough or too much heat.

Dr. S. M. Hamill, Philadelphia: I, also, protest against the use of the older type of incubator, and emphasize one point in Dr. McClanahan's paper that seems to me important in the case of the premature infant, namely, supplying a sufficient amount of fresh air. I have not used an incubator for some years. I have been following much the same course that Dr. McClanahan has outlined. I had an experience a year and a half ago, which demonstrated that at least one premature infant was able to breathe an air of low temperature without detriment. I had the infant forced on me in the children's ward of the Polyclinic Hospital. None of the small rooms in the hospital were then available. Being an advocate of fresh air, I keep the windows open constantly, winter and summer. Having had this child brought into that ward it became necessary either to rob the children in the ward of their usual amount of fresh air, or to keep the windows open and endeavor to maintain the body-heat of the premature infant while at the same time letting it breathe the cold, fresh air of the ward. On the principle of doing the greatest good to the greatest number, I chose the latter course, and put the baby in a specially prepared clothes-basket close to a radiator. I succeeded in maintaining the heat about the body of the baby at from 90 to 95 F., whereas the temperature of the ward often fell as low as 50 or 55 F. at night. That baby did better than any premature baby I have ever seen. I have had experience in keeping these babies in room temperature of from 65 to 70 degrees for a short time, but never before at such a temperature as that above indicated. I am not advocating this as a proper procedure, but it illustrates the fact that these babies can breathe an air at low temperature without harm.

Dr. F. B. Talbot, Boston: Concerning the conservation of energy in the new-born, the new-born baby maintains his own body-heat after birth by using up the glycogen which has been deposited in the liver. In a certain number of instances when all the glycogen is used up, the body-fat is converted into sugar, and is used in this form. If the mother's milk comes in on the third day, and often later, they may not use their own body-fat at all. Under those circumstances they do not lose weight. If it does not come until five or six days they lose a good deal of body-fat and weight. The obvious conclusion to draw from this is that if the baby has not much fat, is not well developed, is a weak baby, it must be fed early to give it energy to keep its life, and to maintain its body-heat. This discussion goes with accurate scientific measurements of heat and determination of the respiratory quotient.

Dr. F. N. Rogers, Manchester, N. H.: One point I would bring out that Dr. McClanahan mentioned in his clothes-basket arrangement is that the weight a child would lift by respiration is simply the displacement of air. When cotton batting and pads are put about the child, there is apt to be more or less weight to be displaced, which takes energy.

Dr. Henry F. Helmholz, Chicago: In those cases with syncopial attacks during the first or second day, I have used in two cases 6 per cent. dextrose solution with excellent results. The child in one instance was practically moribund, but responded quickly to an ounce of 6 per cent. dextrose solution. That was kept up at five-hour intervals. There was no breast-milk available and the child from that time on did very well. The following day we were able to obtain some breast-milk, and the child recovered. The dextrose was administered hypodermatically.

Dr. H. M. McClanahan, Omaha: Some years ago I bought what I thought was a model incubator, and all our premature babies died about the fifth or sixth day, until I became discouraged. In all the cases I cited in my paper I was called to the home. Gavage is not as convenient there as in the hospital. The infant should not go too long without food. I believe a thermometer should be constantly present in the basket, and the temperature of the basket should not go above 90 or 95. Secondly, I emphasize, also, the danger of letting a baby's temperature go to 104, 105 or 106. In the last child I lost, one I saw an hour before it died, the temperature was 106, I believe due to the carelessness of the nurse in letting the temperature of the basket get too high. The temperature should be taken as a routine measure every twenty-four hours at least.

INTRACRANIAL HEMORRHAGE IN THE INFANT

WITH HISTORY AND NECROPSY REPORT OF A CASE

J. W. Shuman, M.D., Sioux City, Iowa

Recently I was called to conduct a necropsy in the case of an infant succumbing to some obscure lesion, and through the kindness of the attending physicians, Drs. J. W. Flageolle and G. S. Browning, the following clinical history was obtained:

History.—Dr. Flageolle was called Aug. 18, 1914, to see baby G. W., aged 6 weeks. The child had not been well since the sixteenth, but not ill enough to need medical attention. The history was negative as to traumatism or syphilis. He found the baby irritable when disturbed. There was considerable tenderness over the lower abdomen but no distention; the mother stated that the baby cried in his sleep and also when she attempted to pick him up. There had been no spasms, the Cheyne-Stokes respiration was present, the temperature was 98.6, pulse 90, and as no bowel movement had been secured since August 16, attempts were made per enemata to empty the bowel, but without satisfactory result. The following day at 9 a. m., Drs. Browning and Flageolle examined the child noting the following: pupils unequal (left dilated, right, "pin-point"); Cheyne-Stokes respiration, clonic spasms, some cervical rigidity and Kernig's sign positive. The clinical diagnosis of cerebrospinal meningitis was tentatively entertained. Death occurred without any change in symptoms at 1 p. m., of the same day.

Necropsy.—Necropsy was held at 4:30 p. m., the same day, showed a well-nourished child, with slight bulging of the fontanelles and rigor mortis pronounced; an elongated prepuce with pin-point opening was noted. There were bluish-red discolorations on the back and left leg (post-agonal).

The thoracic and abdominal findings were negative except as to the colon, the mucous membrane of which was dotted with numerous small ecchymotic areas, extending from the ileocolic valve to the anus, with a slight membrane present, which was easily washed away.

No ecchymosis or other evidence of traumatism on the scalp or exterior surface of the skull. On incising the dura mater the brain substance exuded, denoting increased intracranial pressure. The consistency of the brain tissue was extremely soft and pulpy rendering it impossible of manipulation; the cranial bones were normal. On removing the cerebrum subdurally and left posteriorly a well organized, dark blood-clot (1½ ounces) was found compressing, but no attached to the brain. The brain substance was so soft that definite localizing with it was impossible; no communicating vessel could be observed. A small amount of blood-tinged cerebrospinal fluid was present; smears made from it and examined proved negative for micro-organisms; the cerebellum and medulla evidenced no abnormalities and were normal in consistency.

Pathologic Diagnosis.—Cause of death (1) cerebral pressure, due to (2) subdural hemorrhage (left posterior); (3) cause (?); (4) mucocolitis (mild).

This instance is reported to call attention to the fact that a necropsy is invaluable in checking up the clinical diagnosis and in making a correct finding of the "cause of death." The greatest interest, however, centers in the question as to the cause of the hemorrhage. As noted, there was no sign of traumatism to the head nor was there any fever to indicate acute meningeal infection or brain abscess.

Had there been severe trauma during delivery sufficient to cause hemorrhage, symptoms would have developed before six weeks, but up to that time the child had been apparently normal. With no previous derangement, as convulsions or severe coughing to increase the intracerebral blood pressure, and no traumatism to the head, the cause of the hemorrhage remains an unsolved problem.

Choyce (A System of Surgery, iii) quoting Karl Henschen (Verhandl. d. Deutsch. Gesellsch. f. Chir., 1912) states that it is only comparatively recently that the head injuries that the child is liable to during birth have received due attention from diagnosticians and surgeons and that the frequency of intracranial hemorrhage in the newborn has been observed in several long series of necropsies and results have differed considerably. Some observers have found hemorrhage in 2 per cent. of all post-mortem examinations of young infants; others in as many as 12 to 13 per cent. It is certainly far from an uncommon injury and it must be remembered that probably a large number of infants recover from it with or without persistent symptoms. The frequency of the so-called congenital and infantile hemiplegias and diplegias confirms this view.

It is further claimed that the commonest lesion is the subdural hemorrhage; laceration of the veins entering the longitudinal sinus and laceration of the tentorium are the chief sources of the bleeding. Even abnormally quick labor and cesarean sections have been followed by it. The hemorrhage usually occurs at or in a few hours following birth, but may not manifest itself for days or even weeks, clinically, and it is probable that convulsions occurring within a few weeks of birth are due to traumatic lesions of the brain. The newborn's brain is very tolerant of compression and consequently the symptoms are apt to be slight or obscure. Definite localizing symptoms are frequently, perhaps usually absent. The tendency to hemorrhage not uncommonly present, especially in syphilitic infants, is probably an important factor in many cases.

A Suggestion Concerning Passive Congestion in Rheumatism.—I desire briefly to call attention to a little procedure commonly used by surgeons with benefit in treating infections and which may be useful in the treatment of acute articular rheumatism. I refer to passive congestion produced by constriction of an extremity or otherwise. Acute articular rheumatism is a systemic infection with particular affinity for joint structures, and this procedure, which aids Nature by flooding the involved portion with Nature's own anti-bodies, is sound in principle. Venous congestion does more than this, however, when salicylates are being administered. The ingested salicylates exist in the alkaline blood and tissues only as salicylates, and these have no germicidal action. However, in the presence of greatly increased carbon dioxid tension, some salicylate is converted into salicylic acid, and this is a powerful germicide. It is supposed that in the congestion of an inflamed joint this conversion takes place. Thus if the salicylates do have any direct effect on the organisms causing the disease, that effect is increased by retarding the venous circulation of a part involved.—J. S. Lancaster, M.D., Los Angeles.

Therapeutics

PREVENTION IS GREATER THAN CURE

(Continued from page 1671)

VIII

DUST

We have already briefly referred to what is now understood as pure air, and the effect of stagnant and overmoist air on the individual. The injury caused by dust or impure air, however, has not been sufficiently emphasized.

The excellent discussion of this subject two years ago by Prof. Charles Baskerville of the College of the City of New York[1] has been used as a basis for this article.

For practical purposes the impurities of the air may be divided into two classes, dust, and fumes or gases. In the cities the dust contains pulverized excreta of human beings and animals, the material which is constantly being worn from the buildings and pavements, the waste from houses, stores and factories, micro-organisms, leaves, remains of fruit, and other parts of plants and trees. It is interesting to know that the air of subways contains many minute angular particles of iron.

In the country the dust consists to a larger extent of particles worn from the road. The substances of which the road is composed are more or less pulverized by the traffic. This dust is especially increased by heavy carts and automobiles. The country roads are disintegrated in part by the frosts of winter, in part by the wind, by the action of the falling rain, and by the transporting power of water. Oiled roads, as soon as they dry, give rise to particles of crude, irritant tar-oil which are wafted with the dust.

These components of the dust are all more or less irritating, not only to the mucous membrane of the respiratory tract, but also to the eyes. When the amount of dust is small the irritation may be slight, but when the amount of dust is large and when there is a considerable amount of tar-oil present, the irritation may be very troublesome.

The prevention of this dust is accomplished by care in the building and in the maintenance of the roads. The best structure for a roadbed and top dressing must be decided by the region, by the variations in climate, by the geography of the locality, and by the character of the traffic. There is doubtless no one best roadbed.

There is no question of the necessity for a city to water its streets. There, also, seems to be no question of the advantage of oiling turnpikes and country roads, if they are built of material that allows of oiling. Whether or not a city should oil its streets is a subject for discussion.

Baskerville suggests as a suitable disinfectant and agent for the diminution of dust a very dilute chlorinated lime solution. The chemical is cheap, and any outlay entailed would be more than covered by the decrease in dust-borne diseases. He also calls attention to Dr. Nesbit's work in ridding Wilmington, N. C., of flies by sprinkling the streets five times with an attenuated mixture of water with light pine-oil. An incidental effect of the suppression of the flies was the stamping out of a typhoid fever epidemic.

---

[1] Baskerville, Charles: New York Med. Jour., Nov. 23, 1912, p. 1061 and Nov. 30, 1912, p. 1119.

The other part of the impure air problem has to do with noxious fumes and gases, and is especially important in cities. There may be mentioned first the danger from illuminating gas. The chief poisonous constituents of this are "ammonia, hydrocyanic acid, hydrogen sulphid, carbon disulphid, other gaseous sulphur compounds, and carbon monoxid." The danger from the inhalation of concentrated illuminating gas, such as is often taken with suicidal intent, are too well known to require repetition, but the hygienic importance of good ventilation and the constant renewal of outside fresh air to a room where illuminating gas is constantly, or for a long time, burning is not sufficiently understood. Also, the depressing influence and the actual blood disturbances, even anemia, caused by the constant inhalation of the gas from an illuminating-gas leak in a house or building is not sufficiently noted, and is not investigated by boards of health as it should be. Leaks of illuminating gas, which occur so constantly and frequently in tenement houses, stores and factories, have not been sufficiently considered as a menace to health.

The atmosphere outdoors in manufacturing towns is contaminated extensively with the smoke produced by the combustion of large quantities of coal. The combustion gases from this source are of a highly poisonous nature. They may be diminished to a considerable extent by proper management of the fires by skilled firemen. An important constituent of this smoke is the soot, which is due to incomplete combustion, and which may be "formed partly by the mechanical removal of dust by the chimney draft, and partly by the decomposition of the fuel, such as takes place in the process of destructive distillation. It consists mainly of carbon, tar and ash or mineral matter together with small amounts of sulphur and nitrogen compounds, and often possesses an acid character." The sticky properties of soot are due to the tar which it contains.

Sulphur dioxid is one of the most important impurities of city air, especially in manufacturing towns, and this is derived to a large extent from the combustion of coal and of coal gas. Its presence in the air has a serious effect on susceptible persons, and particularly damages the respiratory organs. It tends to cause anemia and bronchitis. Various efforts are made to discourage the dissemination of smoke in communities. It has been suggested that more might be accomplished if the matter were placed by municipalities and boards of health "in the hands of men qualified to assist manufacturers to suppress the nuisance without causing them difficulty." Methods have been invented whereby much of this waste combustible material may be collected with profit to the manufacturer and with health and happiness to the surrounding community. The smoke nuisance should be most seriously considered by all cities.

The dust which is present in the air of many shops and factories, and which is produced incidentally to the various processes employed in the mechanical arts, is a factor of considerable importance in connection with the health of the workmen.

These dusts may be divided into three classes: (1) insoluble inorganic dusts; (2) soluble inorganic dusts, and (3) organic dusts.

The first class, the insoluble inorganic dusts, includes metals such as antimony, arsenic, type metal, brass, bronze, copper, aluminum, iron, steel, lead, manganese, silver, tin and zinc, in a state of fine division; also various ore dusts such as that from iron ore, silica, sand, emery, flint, glass powder, carbon, graphite, diamond, coal, soot, brick dust, marble, granite, cement, terra cotta, lime, gypsum and plaster.

The second class, the soluble inorganic dusts, includes substances which may be swallowed and absorbed, such as metallic particles like lead, brass, zinc, arsenic, mercury and silver, and soluble inorganic salts.

The third class, or organic dusts, includes "sawdust, fur, skins, feathers, broom and straw, grains and flours, jute, flax, hemp, cotton, wool, carpet dust, street sweepings, tobacco and tobacco-box dust, hides and leather, felts, rags, paper, horsehair, etc."

These various dusts affect chiefly the respiratory organs, but to a less extent the eyes and the skin. In the lungs they produce a condition of fibrosis of the lung to which Zenker gave the name "pneumonokoniosis." Various forms of this disease have been described, depending on the nature of the irritant producing the fibrosis. Among them may be mentioned anthracosis, or coal-miners' disease, caused by the inhalation of the dust from anthracite coal; siderosis, caused by the inhalation of the dust from metals, especially from iron, and chalicosis, caused by the inhalation of mineral dusts, resulting in the so-called stone-cutters' phthisis and grinders' phthisis. The inhalation of iron dust diminishes the respiratory efficiency of the lungs by causing a lessening of their elastic property. It may also reduce the resistance of the lungs to invasion by harmful bacteria. That form of disease distinguished as siderosis exists with special frequency among metal polishers, knife grinders and others engaged in metal work.

Among the diseases caused by the organic dusts may be mentioned flax dressers' disease, a kind of pneumonia due to the inhalation of particles of flax and alkaloidal poisoning from African boxwood, seen in workmen engaged in shuttle making.

The prevention of these various forms of disease incidental to various forms of industry without unduly interfering with the profits of the business is often an exceedingly difficult problem. Among the suggestions which have been made, and which are employed with more or less advantage may be mentioned:

1. The removing of the dust from the room in which it is produced by forcible suction applied at the seat of its production. This is especially applicable in the trades of grinding and polishing.
2. When irritating dust affects the eyes, glasses for their protection should be worn by the workmen.
3. Those engaged in sorting rags in paper factories, workmen on threshing machines, millers, mixers in glass factories, stone cutters, sculptors and all others in factories where there is irritating dust should wear respirators over the mouth and nose to prevent the dust from entering the respiratory organs.
4. Those employed in the manufacturing of oxidizing agents or lead workers should change their clothes before leaving the factory.
5. The dust on the floors of printing, type-casting, metal-working and similar establishments should be laid by means of certain preparations adapted for this purpose. Probably the best are mineral oils which accomplish this result very satisfactorily.
6. General ventilation of the shop should be employed as far as practicable to dilute the unavoidable dust and remove it as far as possible.

7. The value of vacuum cleaning for factories should be emphasized as much as it is for office buildings, stores and private houses.

MINE SANITATION

While this subject is not of much general importance, it is of great importance to some of us, and should interest all. New methods of saving life and of avoiding accidents, and the condemnation of criminal carelessness should ever be subjects worthy of careful review, if not of individual study.

Mine problems, so well understood by some physicians, but so little by the majority, are splendidly outlined in an article by Dr. N. P. Brooks[2] which it would be well for all interested to read carefully. The main points for consideration are proper and scientific ventilation, proper lighting methods, methods to diminish dust, proper drainage, proper disposal of excreta of men and animals, and a greater care of the personal hygiene of the miners.

Briefly, the gases in coal mines are as follows:

CH_4, methane or marsh gas, is "colorless, odorless, tasteless, lighter than air, in a pure state burns with a blue flame, and is very explosive when mixed with certain proportions of air." When breathed in a pure state it affects the individual not unlike laughing gas, and does not cause harm when inhaled as long as the supply of oxygen is sufficient.

CO, white-damp or carbon monoxid, "is a colorless, odorless, tasteless gas, lighter than air, combustible, and explosive when mixed with a certain proportion of air." This gas is very poisonous, and if 1 per cent. of it is breathed for any length of time it produces dyspnea, headache, loss of sight, soon paralysis, beginning with the lower extremities, and finally unconsciousness. When unconsciousness is caused by carbon monoxid the patient may not be resuscitated at all, or if he is, his mentality may be seriously injured. A positive indication that this gas is accumulating in dangerous amount is shown by the death of white mice or other small animals, that should be kept in the mines where their condition can be readily observed by the miners.

CO_2, carbonic acid gas, carbon dioxid, "is a colorless, odorless, tasteless gas, heavier than air, and a non-supporter of combustion." The presence of this gas in abnormal amount is readily detected by the dimness of the oil lamps. The first symptoms of a poisonous amount of this gas are increased heart action, lassitude, and headache. If the amount of the gas is very considerable the individual may fall unconscious without even a cry. Men subjected to this poisoning may remain unconscious for some hours, provided they get a sufficient amount of oxygen, and still be resuscitated. "Suffocation ensues when there is 1 volume of this gas to 12 volumes of air."

H_2S, hydrogen sulphid, stink-damp, does not frequently occur in mines, but is very poisonous. Its obnoxious odor causes it to be quickly detected.

Lighting, ventilation and methods of diminishing dust are too technical to be discussed here. Carelessness in the drainage of mines, from the effect that bad drainage can have on the miners, should not be tolerated. Miners who must work all day with wet feet are certainly rendered liable to colds, joint affections and neuritis, if not to more serious illnesses. If they are barefooted, in certain regions, they are liable to acquire the hookworm disease. If they work in rubber boots, the sweating and general lack of elasticity caused by standing all day in rubber is a distinct disadvantage to the individual.

The care of the excreta in mines should certainly be under the control of the boards of health in the regions in which the mines are located, and sanitary measures, now well understood, should be established in every mine. The clothing and cleanliness of the miners and their drinking habits should all be subject to careful supervision, the two former for their individual welfare, and the latter not only for their own welfare but for that of others, as carelessness is an important factor in mine disasters.

As first aid to the injured in accidents and mine disasters must frequently be rendered by fellow miners or their foremen, instruction should be given to all in artificial respiration, in methods of stopping hemorrhage, in the first antisepsis and dressing of injuries, and in the action of the different poisonous gases. Foremen should pass an examination on such subjects.

(To be continued)

New and Nonofficial Remedies

The following additional articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association. Their acceptance has been based largely on evidence supplied by the manufacturer or his agent and in part on investigation made by or under the direction of the Council. Criticisms and corrections are asked for to aid in the revision of the matter before publication in the book "New and Nonofficial Remedies."

The Council desires physicians to understand that the acceptance of an article does not necessarily mean a recommendation, but that, so far as known, it complies with the rules adopted by the Council.

W. A. Puckner, Secretary.

NORMAL HORSE SERUM (See N. N. R., 1914, p. 243).

Slee Laboratories, Swiftwater, Pa. (The Abbott Alkaloidal Co., Chicago).

Slee's Normal Horse Serum.—Markefed in vials containing 100 Cc.

SERUM ANTIDIPHTHERICUM AND ANTIDIPHTHERITIC GLOBULINS (See N. N. R., 1914, p. 236).

Memorial Institute for Infectious Diseases, Chicago.

Diphtheria Antitoxin.—Marketed in packages of 10,000 units, both in syringes ready for use and in bottles.

Frederick Stearns & Co., Detroit, Mich.

Concentrated Diphtheritic Antitoxin.—Marketed in separate syringe packages containing respectively 500, 1,000, 2,000, 3,000, 4,000, 5,000 and 7,500 units.

BACILLUS COLI VACCINE (See N. N. R., 1914, p. 247).

E. R. Squibb and Sons, New York City.

Bacillus Coli Communis Vaccine.—Marketed in boxes of 6 ampoules containing respectively, 100, 100, 500, 500, 1,000 and 1,000 million killed bacilli, with a syringe.

STAPHYLOCOCCUS VACCINE (See N. N. R., 1914, p. 254).

E. R. Squibb and Sons, New York City.

Staphylo-Acne Vaccine.—Marketed in boxes of 6 ampoules containing respectively, 100 million killed staphylococci, and 20 million killed acne bacilli, 100 million killed staphylococci and 20 million killed acne bacilli, 500 million killed staphylococci and 50 million killed acne bacilli, 500 million killed staphylococci and 50 million killed acne bacilli, 1,000 million killed staphylococci and 100 million killed acne bacilli, and 1,000 million killed staphylococci and 100 million killed acne bacilli, with a syringe.

---

[2] Brooks, N. P.: Month. Cyc. and Med. Bull., April, 1913, p. 203.

THE JOURNAL OF THE
AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street . . . Chicago, Ill.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

Contributors, subscribers and readers will find important information on the second advertising page following the reading-matter.

SATURDAY, NOVEMBER 14, 1914

THE CEREBROSPINAL FLUID

The importance which attaches to an expansion of our knowledge of the functions of the cerebrospinal fluid in relation to many problems in surgery and medicine has been well summarized in a recent paper by Drs. Frazier and Peet[1] of the University of Pennsylvania. We are impelled to quote their own words because they emphasize so plainly the directions in which progress is demanded. The accumulation of cerebrospinal fluid in abnormal quantities, we are reminded by the Philadelphia investigators, is a factor which must be reckoned with in many intracranial diseases. It is accountable not only for many subjective and objective disturbances, but it is often the determining factor in the fatal cases. How essential it is in diagnosis, prognosis and treatment will be realized by the mere mention of such morbid conditions as hydrocephalus, brain tumors and meningitis. In the treatment of these, so far as it concerns the damaging effect of excessive secretion or inadequate absorption of cerebrospinal fluid, we are helpless and wofully unsuccessful. It is of the utmost importance, therefore, that investigation of the cerebrospinal fluid should be continued until the fundamental principles of secretion and absorption are thoroughly understood, in the hope of finding some effective means of controlling oversecretion or diminished absorption.

Not long ago we discussed some evidence that the cerebrospinal fluid is a typical secretion initiated in the "choroid gland" or choroid plexus of the various ventricles of the brain.[2] Frazier and Peet[1] have been able to elucidate the problem of the secretion and absorption of the cerebrospinal fluid by the production of artificial hydrocephalus. So long as the fluid is widely distributed throughout the subarachnoid and subdural spaces of the brain and cord, it is not easy to ascertain the location of changes in its make-up and movements. The fluid is produced almost entirely within the two lateral, the third and fourth ventricles. This was shown by effecting a closure of the lower end of the aqueduct of Sylvius whereby intracranial pressure is developed. A moderate hydrocephalus may arise without any signs of meningitis. Although the cerebrospinal fluid is without doubt secreted mostly, if not entirely, within these brain cavities, absorption from the ventricles is practically negative and does not take place until the fluid has escaped. The lateral ventricle, therefore, is merely a receptacle, like the bladder, for the storage of fluid. Frazier and Peet agree with Dandy and Blackfan[3] in believing that it is possible to differentiate different types of hydrocephalus from the point of view of etiology, for instance, those with from those without obstruction of the ventricles, by introducing a detectable substance like phenolsulphonephthalein into the ventricles and watching the rate of its reappearance in the excreta. In obstruction this will be extremely slow.

Dixon and Halliburton[4] venture the belief that some product of the brain's metabolism passes to the choroid plexus, and that this stimulates the secreting epithelium, which causes the plexus to become active. This is essentially the postulation of a "hormone" regulation of the production of cerebrospinal fluid. The normal rate of secretion was found by Frazier and Peet to vary widely under normal conditions. It has been suggested that the secretion of cerebrospinal fluid may be controlled by ligation of the common carotid arteries, and this operation has even been recommended in the treatment of hydrocephalus. It is, of course, very desirable to know the effect of disturbance of the cerebral circulation on the rate of secretion in order to place any indicated operative procedures on a sounder scientific basis. In Frazier and Peet's experience, in an observation on man, the rate of secretion was practically uninfluenced by so profound an interference as the ligation. We are inclined to urge, therefore, until contradictory evidence is forthcoming, that the operation of ligating the common carotid arteries should not be endorsed with the expectation of influencing favorably the hydrocephalus that is either of congenital origin or the accompaniment of brain tumors.

Inasmuch as the venous circulation appears to be concerned with the absorption rather than the production of the cerebrospinal fluid, it is not to be expected that disturbances of its mechanism would affect the secretory output of the choroid plexus. Impaired absorption might be expected under certain of these conditions, especially since it has been found that the lymphatics play at best an inconsequential part in the absorption of cerebrospinal fluid. Frazier and Peet remind us that pressure on the sinuses and obstruction to the venous circulation is no doubt a factor in the accumulation of cerebrospinal fluid so frequently associated with brain tumors, especially of the posterior fossa. As the major portion of the venous circulation of the brain, including the cerebral veins and dural sinuses, leaves the cranial cavity from a point in the posterior fossa, the jugular foramen, it is readily understood why posterior fossa tumors are so frequently and at a comparatively early stage associated with increased intracranial tension which comes from the accumulation of cerebrospinal fluid. In other words, obstruction to the venous outflow is immediately followed by a rise in venous pressure, by the accumulation of cerebrospinal fluid, and a resulting increase in intracranial tension.

---

[1] Frazier, C. H., and Peet, M. M.: Factors of Influence in the Origin and Circulation of the Cerebrospinal Fluid, Am. Jour. Physiol., 1914, xxxv, 268.

[2] Compare: The Production of Cerebrospinal Fluid, Editorial, The Journal A. M. A., March 28, 1914, p. 1018.

[3] Dandy, W. E., and Blackfan, K. D.: An Experimental and Clinical Study of Internal Hydrocephalus, The Journal A. M. A., Dec. 20, 1913, p. 2216.

[4] Dixon, W. E., and Halliburton, W. D.: The Cerebrospinal Fluid, I, The Secretion of the Fluid, Jour. Physiol., 1913, xlvii, 215.

The cerebrospinal pressure has been observed by Frazier and Peet to vary with the pressure of the venous sinuses and to be practically identical with it. Under normal conditions, there are certain oscillations which are due to the effect of inspiration and expiration on venous pressure, but they may be arrested by slight increase of intracranial tension. Closure of the carotid circulation causes an immediate, though only transitory, fall of cerebrospinal pressure; but obstruction of the venous circulation is followed by an increase in pressure more or less constant.

Dixon and Halliburton[5] have now added to their earlier investigations[4] a consideration of the effect which marked changes in cerebrospinal pressure produce on other functions. A relatively small increase in cerebrospinal pressure causes stimulation of the respiratory, vasomotor and cardio-inhibitory centers. The stimulating effect is least marked on the respiratory center. When the pressure is increased to a height considerably above the normal arterial pressure, respiration ceases in a few seconds, but the other two centers remain active and the arterial pressure rises enormously in spite of the slow heart; a little later the cardio-inhibitory center is paralyzed, and the continued activity of the vasomotor center still further raises the arterial pressure. This represents, as Cushing[6] has pointed out, a protective mechanism which continues to force the blood along the compressed blood-vessels. Ultimately, however, if the high cerebrospinal pressure is kept up, paralysis of the vasomotor center ensues, and the arterial pressure then falls.

The results of Dixon and Halliburton in relation to the early depression of the respiratory center as the result of cerebral compression accord with the views of Horsley and his colleagues. Cushing has not quite agreed with them on the primary importance of respiratory failure. He regarded the cessation of breathing as the result of fatigue or failure of the vasomotor center which allows the blood-pressure to fall below the intracranial pressure. Anemia of the respiratory center consequently ensues, and respiration, already embarrassed, immediately ceases. At this stage, unless relief is given, the blood-pressure sinks to a level which represents irrevocable paralysis of the respiratory center. The English surgeon, regarding the respiratory center as the most sensitive to mechanical pressure and shocks, recommends that in cases in which death is imminent, in cases of intracranial pressure, artificial respiration should be immediately performed and the skull opened freely.

HIGH SCHOOL ATHLETICS

The Journal has freely expressed the view in the past that the competitive athletics of our American colleges and universities often harbor unsuspected dangers in that they encourage overdoing on the part of the participants. No one would gainsay that systematic and even strenuous exercise may exert a most wholesome effect on the human organism. But the win-at-any-cost exertion, taxing vital organs to the very limit of their endurance, exceeding the factor of safety in physiologic functions, and sometimes carried to the breaking strain, represents a sort of unjustifiable self-sacrifice that may properly be made for one's country but is never called for to uphold the glory of one's college. The sooner it is realized that there are better tests of manliness than the ability to endure a 4-mile race in the college boat or to complete the football season in spite of acquired injuries, the more wholesome will American college life become.

Unfortunately, there is a widely manifested tendency for the pupil of the high school to ape the performances of his older brother in the college. This is shown in the introduction of Greek letter societies and social functions into the secondary schools, tending to counterbalance some of their wholesome features of social intercourse with the snobbery of exclusiveness and the deteriorating influence of late hours and tiring distractions. Even more baneful, however, is the growing custom of allowing the same sort of intense competitive sports in the high school that are the cause of complaint in respect to their dangers to the older college student.

We are glad to note a spirit of protest awakened in various parts of the United States against all the forces, social and athletic, which tend to deteriorate the American boy (or girl) at the adolescent age of the high school period. One health officer has recently made a public announcement that proper exercise in a well-equipped gymnasium, under the guidance of a trained instructor, is good for any one, but that competitive athletics, requiring most strenuous exertion.

---

[5] Dixon, W. E., and Halliburton, W. D.: The Cerebrospinal Fluid, III, The General Effect of Increasing the Cerebrospinal Pressure, Jour. Physiol., 1914, xlviii, 317.

[6] Cushing, H.: Bull. Johns Hopkins Hosp., 1901, xii, No. 126; Am. Jour. Med. Sc., 1902, cxxiv, No. 3; Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1902, ix.

long and tedious training and self-denial, is positively bad for any one before full development, and that all such overacts tend to impair the keenness of the mind and interfere with school work proper, as well as to injure the body. The competitive interscholastic games which require great physical exertion and mental tension should be done away with and a good gymnasium, under the direction of one trained in physical culture, should be provided and work according to the condition and need of each pupil assigned.[1] We agree, further, that mild and well-timed athletic exercise and occasional social functions will tend to relieve the monotony of school life and invigorate body and mind; but overindulgence is likely to be detrimental.

The dangers referred to are not insignificant; they are real. Prof. C. R. Bardeen of the University of Wisconsin has pointed out, in connection with the participation in athletics in his institution, that the increasing amount of cardiovascular disease noted in this country by life-insurance companies and others makes it important for the physician to make himself acquainted with the chief causes responsible for these conditions so that he can protect his patients. Overexertion in competitive sports, especially in schoolboys, is one factor. From 5 to 10 per cent. of freshmen entering the state university have cardiac hypertrophy with dilatation attributable to athletic sports. While in most cases there is good compensation, in many there are mitral murmurs and a myocardial irritability which not only keeps these students out of college sports, but to some extent hampers their scholastic work in college. Practically all college students taking part in the major sports have hypertrophied hearts. While in many cases compensation is good, in a large number there is a myocardiac irritability, sometimes accompanied by mitral murmurs, which indicate somewhat serious lesions. In the past two years there have in addition been four cases of acute cardiac dilatation among the relatively few members of teams in the major sports to one case among the far greater number of students not members of teams. In the latter case the dilatation occurred while the student was running in the gymnasium.[2]

Criticisms of this sort are never welcomed when they contravene established customs. Yet there is an obvious contradiction in directing the energies and funds of the state toward the prevention of disease and the establishment of habits of right living in the earliest years of our public schools, only to permit their undoing at a subsequent period. School doctors and school nurses in the primary departments have come to stay for some time, at least. Why not more healthful school customs in later years?

---

[1] Wright, Frank W.: A Plea for More Healthful School Customs, Bull. New Haven Board of Health, 1914, xli, No. 10.

[2] Bardeen, C. W.: The Effect of Athletic Sports on the Heart, The Journal A. M. A., Nov. 1, 1913, p. 1657.

FOOT-AND-MOUTH DISEASE

In view of the recent outbreak of foot-and-mouth disease in the Mississippi Valley, the most extensive as yet in the United States, a brief consideration of the principal features of the disease may be of interest. It is an acute, highly infectious disease, which occurs chiefly in cattle, sheep, goats and swine, though other animals such as the horse and dog, as well as certain wild animals are attacked also, and it may affect human beings. In animals it is characterized especially by the eruption of vesicles in the mouth and on the feet, in some species more in the mouth, in others more on the feet. In cattle the incubation period averages from three to five days, whereupon a moderate fever with loss of appetite and other general symptoms sets in. In two or three days small blisters appear on the lining of the mouth, and now the fever usually subsides. At the same time one or more feet may show tenderness and swelling of the skin, soon vesicles form here also, and the animal goes lame. In the mouth the blisters may reach half an inch or more in diameter, but usually they are smaller; the contents, at first clear, become turbid, and as the covering bursts, small painful erosions are produced which either heal quite promptly or turn into ulcers that heal more slowly. Usually the milk is altered and reduced in quantity; blisters and ulcers may form on the udder. There is marked loss of weight, as the animals do not eat because of the pain. In this, the ordinary form, in which the death-rate is very small except among the young, the symptoms fade away in from ten to twenty days or so, except when complicating local secondary infections delay recovery, but there are also severe forms with extensive infection of the respiratory tract and gastro-intestinal inflammation, which frequently end in sudden death. In such severe cases ulcers are found in the stomach and intestines. In sheep and swine, lesions of the feet predominate. The disease is transmissible to the fetus in utero.

The cause of the disease is present in the contents of the vesicles, the discharges from the ulcers, the saliva, the milk, the urine and feces, but as a rule not after the tenth day. It is stated that animals having had the disease may carry the virus for months.[1] Any susceptible species may infect any other susceptible species. Infection occurs not only through direct contact, but also indirectly, as the virus retains its virulence for some little time, at least outside the body. Contamination of fodder, of stalls, of feeding and drinking troughs, of milk and milk products and of the hands and clothes of drovers serves to spread the disease, which often travels over wide stretches of country with remarkable rapidity, as shown by the present outbreak. As from 25 to 50 per cent. of the cattle exposed to infection may become sick, there results great loss from fall in the production of milk, from reduction of vitality and fecundity, and from deaths as well as on account of the measures adopted to stamp out the epizootic.

---

[1] Moore: The Etiology of Infectious Diseases in Animals, 1906.

The immunity produced by an attack seems to be feeble, as animals are said to suffer sometimes more than one attack within a short time. So far no practical method of protective inoculation has been developed.

Our knowledge of the cause of foot-and-mouth disease is limited to the fact that it concerns a filterable virus, as yet invisible and incultivable. It was in 1897 that Löffler and Frosch made their classical experiment, showing that the disease is caused by a living, proliferative virus that passes filters which do not permit bacteria to go through, an experiment that has served as a model for all the subsequent work on the many other forms of filterable virus recognized since then. Foot-and-mouth virus may remain active for months if kept cool and moist, but is destroyed rapidly by drying, by heat at 60 C. (140 F.) and above, by formaldehyd and by phenol (carbolic acid). The wide range of virulence of this virus among animal species has been indicated, and as stated, the disease may affect human beings, especially children, being transmitted by milk from diseased cows (experimentally verified) and by butter and cheese made from such milk as well as through wounds and in other ways. While the course usually is favorable, an epidemic described by Siegel had a mortality of 8 per cent. The manifestations are fever, digestive disturbances and vesicular eruption on the lips, the oropharyngeal lining ("aphthous fever") and sometimes on the skin. Where there is danger of contamination of the milk with the foot-and-mouth virus, thorough pasteurization of all milk and milk products is doubly indicated.[2]

THE ACTION OF IODIDS ON THE BLOOD-VESSELS AND HEART

Recently we commented[3] on the use of sodium as compared with potassium salts, and noted that in most cases potassium salts are given not for their potassium content but for the therapeutic effects produced by the negative or acid radical, as for instance in the case of acetates, tartrates, carbonates, bicarbonates, iodids, etc. We stated also that probably the corresponding sodium salts might prove equally and sometimes even more serviceable since the sodium ion has a less depressing action on the heart and central nervous system than has the potassium ion.

In the case of such salts as quinin arsenate[4] and ferric arsenate,[5] the reports of the Council on Pharmacy and Chemistry have emphasized that both the acid radical and the basic group are therapeutically active. Not enough of one of the constituents of these can be given without perhaps a dangerous overdose of the other constituent. In general, however, we are inclined to forget that in almost every salt the effects of both the kation or positive radical and the anion or acid radical must be considered. A new investigation of D. I. Macht[6] has an important bearing on this subject.

For some years the iodids, especially potassium iodid, have been credited with having a vasodilator or blood-pressure lowering action and have found extensive application in the treatment of arteriosclerosis. Aside from cases with a luetic basis, however, no satisfactory explanation of the supposed usefulness of the iodids in arteriosclerosis has been offered; in fact, many have doubted the value of the iodids in this condition.[7] The only experimental basis for the belief that iodids lower blood-pressure seems to have been chiefly animal experiments in which potassium iodid had been injected intravenously and in which the relative parts taken by the potassium and iodid ions were not differentiated. That the potassium ion when present in the blood even in weak concentration (0.08 per cent., for example) leads to an almost instant stoppage of the heart has been known for some time and has led to unwarranted fears of possible dangers from the oral administration of potassium salts; as a matter of fact, potassium leaves the blood so rapidly, passing to the tissues or being excreted by the kidneys that, provided the latter are efficient, there is little or no danger from the administration, by the mouth, of even very large doses of the potassium salts.[8]

Macht now reports careful experiments on the heart and blood-vessels in which the relative parts taken by the iodid radical and the other (basic) constituent of the salt were carefully differentiated. In some experiments the potassium chlorid of the nutrient fluid was replaced by potassium iodid or, if a greater concentration of iodid was desired, part of the sodium chlorid was replaced by an equivalent amount of sodium iodid. By such experiments the relative amounts of potassium, sodium, etc., remained unchanged and if the modified fluid had an action on the organs different from that of the original fluid, it was due to the presence of this iodid ion. Such experiments showed that the iodid ion instead of having a depressing action on the heart and vessels, as has been assumed, has a marked stimulating action. This stimulating action, however, is somewhat inhibited by a combination of the iodin with the proteins of the blood. The sodium ion was found to have a slightly stimulating action, whereas the depressing action of the potassium ion was confirmed.

---

[2] See Miscellany, "Foot and Mouth Disease," this issue, p. 1783.

[3] Sodium versus Potassium Compounds, THE JOURNAL A. M. A., Sept. 19, 1914, p. 1034.

[4] Quinin Arsenate Refused Recognition, THE JOURNAL A. M. A., July 16, 1910, p 235.

[5] Rep. Coun. Pharm. and Chem., 1912, p. 30.

[6] Macht, D. I.: Action of Potassium and Sodium Iodids and of Iodin Ion on the Heart and Blood-Vessels, Bull. Johns Hopkins Hosp., September, 1914; abstr., THE JOURNAL A. M. A., Oct. 10, 1914, p. 1325.

[7] See for example the summary of the opinions of many prominent German clinicians as given by J. Schwalbe in the Deutsche medizinische Wochenschrift, 1914, Nos. 14 and 15.

[8] Parenthetically it may be remarked that even the oral administration of large doses of potassium salts to patients suffering from severe nephritis must be regarded as distinctly dangerous and their use in intravenous or intraspinal injections in the doses in which sodium bromid, for example, has been used might prove fatal.

The action of the iodid ion on the heart and circulation, therefore, is that of stimulation. If an iodid has an action other than this it is due to the effect of the kation (potassium, etc.) with which the iodin is combined and should be attributed to it. The same effect may be obtained when this kation is combined with anions other than iodin. If conditions are such (intravenous injections, for example) that potassium i' causes a fall of blood-pressure, this result is due solely to the potassium ion and could be equally well obtained with other potassium salts (potassium chlorid, for example).

Such analyses of the action of common drugs will do much to clarify and simplify our materia medica. While bromid is used in the form of its potassium, sodium, ammonium and even strontium, lithium, rubidium and cesium salt, investigation will no doubt show that one of these deserves general preference when bromid action is desired. Such experiments will also emphasize the unscientific character of many hodge-podge official and proprietary mixtures in which an assortment of metallic salts of a therapeutically active acid radical are combined and from which physicians are inclined to believe that they may obtain effects far beyond those obtainable from any single salt.

SIMPLE NITROGENOUS COMPOUNDS IN NUTRITION

Among the seemingly radical suggestions that have lately found expression in discussions on nutrition is that of the possible utilization of such simple compounds of nitrogen as urea and ammonium salts in the animal organism. Even the nitrates have been drawn into consideration in this respect. The entire
subject, while by no means entirely new as a topic
for experiment and speculation in physiology, has
more ... while provoked a lively controversy in which
um.[2] 1 in Halle, Grafe in Heidelberg, and
Criticisms n New Haven — to mention only a few
they contrav re prominent participants — have taken an
obvious co rt.
funds of tl st thought, those who have not followed at
the establi ge the trend of current nutrition investiga-
earliest yea it see in the attempt to attribute nutrient
their undc to a waste product like urea a symptom of
and schoc is presumption. Nowadays, however, science
come to s t content itself with *a priori* indications or
healthful s arguments. The truth needs to be demon-
1. Wright, F yond the point of conjecture. To have
Bull. New Haven few years ago, on the preeminent impor-
2. Bardeen, C. simple protein derivatives as the amino-
The Journal A. M.

acids in the functions of nutrition would have seemed at that time like contending for something both improbable and contra-indicated. The day of demonstration had not yet arrived.

So it may seem now in the contemplation of the nutrient claims for simple nitrogen compounds of the sort enumerated above. There are several ways in which they may be assumed to behave in the organism. In the first and foremost instance they may serve as a pabulum for the alimentary bacteria, which in turn are destroyed in large numbers in the digestive tract and can furnish a yield of perfect protein synthesized from simple compounds like urea and the salts of ammonia. It is generally admitted that in certain species like the herbivora, in which bacterial processes have a free play in the gastro-intestinal tube, the contribution of dead bacterial bodies to the intake is by no means negligible. Small animals have actually been kept in nitrogenous equilibrium on a diet containing bacterial bodies or yeast cells as the sole source of protein in the food. The factor here referred to is one that is never easy to exclude in any discussion of nutritive values; yet it is not commonly taken into consideration.

The feeding of urea or ammonium salts might lead to an apparent nutritive advantage by depressing or inhibiting the usual breaking down of nitrogenous compounds in metabolism. This would accord with the belief that the products of cellular waste themselves tend to impede cellular metabolism. Now that the synthesis of amino-acids from ammonia and carbohydrates has been accomplished directly or indirectly in the laboratory, the possibility of a similar reaction in the body must be reckoned with. Finally, the alleged utilization of urea and other simple nitrogen derivatives may merely be an instance of unsuspected retention and delayed excretion. Even so soluble a salt as an iodid may not be entirely recovered in the excreta until several days after its administration has been stopped. Surely no one would look on the temporary deficit as an indication of nutritive "utilization" of the foreign salt.

There are, then, various alternative possibilities that must be reckoned with before we can proclaim unsuspected nutritive virtues for urea, nitrates, or other comparable simple derivatives. Foremost, undoubtedly, is the bacterial factor already described. This can be excluded only by avoiding the use of the alimentary tract itself. This prospect, involving prolonged parenteral nutrition, was not promising even in an experimental way until Henriques succeeded in devising an apparently effective mode of intravenous nutrition.[1] By this technic the Danish investigators have introduced urea and ammonium salts, with avoidance of the digestive tract, as the sole source of nitrogen.[2] The outcome has been clearly negative in failing to indicate any permanent retention of nitrogen "fed" in this form and manner. One is constrained to believe, for the present, that the reputed success of others in feeding urea, etc., as sources of available nitrogen has been due to unsuspected temporary retentions or to the inevitable participation of bacteria in converting useless compounds of nitrogen into usable forms.

---

[1] Henriques, V., and Anderson, A. C.: Ztschr. f. physiol. Chem., 1913, lxxxviii, 357. See also Intravenous Nutrition, editorial, The Journal A. M. A., Jan. 31, 1914, p. 385.

Current Comment

TEACHING SEX HYGIENE IN SCHOOLS

There has been considerable discussion on the question of teaching sex hygiene in the public schools. The advantage of increased knowledge for the children, as well as the practical difficulties of presenting this subject properly, have been commented on from various points of view. There has been little effort, however, to secure an expression of opinion from those vitally interested, namely, the parents and the children themselves. For this reason, the report of the Bureau of Research of the Upper Peninsula (Michigan) Educational Association, recently issued, is of interest. This bureau was organized to make a direct study of the schools of the Upper Peninsula of Michigan, their equipment and their methods and material for study. It is at present endeavoring to discover the points of strength and weakness of the schools, as judged by the parents and others interested in them. The report just issued is divided into four sections: moral education, physical education, industrial education and general. The basis for the report is the individual opinions of 317 representative citizens. Under the first head, among many other subjects discussed, the question was asked of parents, "Do you believe that sex hygiene should be taught in the schools?" To this question, ninety-two replied "yes," while 175 opposed such instruction; six made qualified replies. Commenting on these answers, the report says that the replies indicate that patrons of schools are not ready as yet to have sex hygiene taught in the schools. "Doubtless but few teachers are qualified to teach the subject well," says the report, "and to teach it poorly would be much worse than not to teach it at all." The bureau also endeavored to get the point of view of the pupil. At Houghton, two lectures on sex hygiene were given to boys and two to girls. Some time after the lectures, the boys and girls were segregated and were asked: "Did you learn anything of value at the last lecture on sex hygiene?" Ninety boys stated that they had learned something of value and eight that they had not, while fifty-four girls regarded the lecture as of value and twenty did not. When asked: "Do you favor another lecture?" eighty-five boys were in favor of further instruction and thirteen were opposed to it, while forty-four girls were in favor and thirty were opposed to the proposition. This report emphasizes the points which have been previously brought out; until we know what should be taught pupils at different ages, until we have formulated a definite graded course of instruction and have trained teachers to give this instruction, the proposition for teaching sex hygiene in the public schools should be approached with the utmost caution. In no case should an effort be made to force such instruction on the pupils or on the community. When the parents of children are convinced, by a large majority, of the advisability of such instruction, it should be provided. Premature efforts to place such subjects on the school curriculum in advance of public opinion can only cause misunderstanding and trouble.

GAS-PIPE THERAPY GETS A SETBACK

Since the days of Perkin's Metallic Tractors, no medical fraud of the drugless type has enjoyed greater vogue or swindled more people than those devices we have facetiously referred to under the term "Gas-Pipe Therapy." There are many of the gas-pipe frauds on the market. The original was the "Electropoise," devised by one Hercules Sanche, who later elaborated his device and sold it under the name "Oxydonor," having in the meantime persuaded a not-too-exacting patent office to grant him patent rights on the egregious humbug. So profitable, apparently, did the sale of this piece of fakishness prove that many imitations appeared. First, the "Oxygenor"; then, the "Oxygenator," the latter having its name changed later to the "Oxypathor." The "Oxytonor" and the "Oxybon" were still later modifications of the same scheme. Of these the Oxypathor (Oxygenator) has been the most extensively and elaborately exploited, and the extent to which the public has been defrauded has brought forth protests from various sources. The device itself consists essentially of a piece of nickel-plated tubing filled with inert material, sealed and having attached to each end a flexible cord with a garter-like attachment at the free ends. One garter is to be attached to the wrist and the other to the ankle of the person using the Oxypathor (Oxygenator). The gas-pipe itself is put in a bowl of cold water. According to the claims of the exploiters, the patient to whom the Oxypathor (Oxygenator) is attached, is made to absorb large quantities of oxygen through the skin. So absurdly fraudulent is the Oxypathor that the public in various parts of the world has been warned against it. The Australian government has debarred the thing from the Australian continent, while the committee appointed by the British Parliament to investigate medical frauds reported:

> "Much fraud is also successfully practiced by the advertisement and sale of appliances, as alleged cures for many ailments . . . appliances alleged to supply oxygen (otherwise than by inspiration) such as the 'Oxydonor' and 'Oxygenator' are, of course, deliberate swindles, for the makers cannot be supposed to be as ignorant of chemistry and therapy as their victims."

Now comes word from Vermont that the United States government has successfully prosecuted E. L.

---

[2] Henriques, V., and Anderson, A. C.: Ueber Stickstoffretentionen bei Zufuhr von Ammoniaksalzen oder Harnstoff. Durch Versuche mit permanent-intravenöser Injcktion untersucht, Ztschr. f. physiol. Chem., 1914, xcii, 21.

Moses of Buffalo, N. Y., general manager of the Oxypathor concern. The trial, which was held in Rutland, Vermont, lasted over a week, and on Nov. 7, 1914, Moses was found guilty of using the mails to defraud. The scheme has been a profitable one. At the trial it was brought out that the Oxypathor costs $1.23; it sold for $35. Aside from the element of suggestion inseparable from the use of a mysterious, expensive-appearing and imposing-looking device, purchasers of the Oxypathor could have obtained just as valuable curative effects from an empty tomato tin with a string tied to it. As a therapeutic agent, the Oxypathor belongs in the same class as the left hind foot of a rabbit caught in a graveyard in the dark of the moon. Yet at the trial the exploiters of the Oxypathor were able to produce witnesses to testify to the curative value of their gas-pipe — and a few of the witnesses called themselves doctors! This exhibition of credulity — or, in the case of physicians, worse — is but another proof of the inherent worthlessness of testimonials. Imposing and convincing testimony would have been forthcoming long ago to prove the therapeutic efficiency of the rabbit's foot if some one had an exclusive proprietary interest in the sale of rabbit's feet.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

DISTRICT OF COLUMBIA

Personal.—Dr. William Browne Carr, Washington, has been appointed deputy coroner of the District, succeeding Dr. Charles S. White, resigned, to take effect, December 1.

Preparing Red Cross Hospital Site.—The demolishing of buildings on the Seventeenth Street site for the American Red Cross Hospital has commenced. The building to be erected is to be a national memorial to the women of the Civil War.

Examination of Police Surgeons.—On November 17 examinations will be held to form a list of eligibles for an appointment to the vacancy in the Board of Police Surgeons caused by the resignation of Dr. Edmund Barry, Washington, and the vacancy in the corps of medical inspectors in schools, caused by the resignation of Dr. Wilfred M. Barton. The health department announces that all who pass this examination are eligible for appointment as third assistant resident physicians at the Asylum Hospital and by law will advance after appointment one grade every four months, progressing through the Asylum Hospital, Home for the Aged and Infirm and the Tuberculosis Hospital. They then become eligible for appointment as resident physicians to the poor and later may be appointed inspectors of schools and then members of the Board of Police Surgeons.

FLORIDA

State Board News.—Dr. Joseph Y. Porter, Jacksonville, State Health Officer, has established a branch office at St. Augustine, with Dr. Maurice E. Heck in charge.——The State Board of Health is expending $20,000 for the erection of a laboratory in Jacksonville. The board has established a bacteriologic laboratory in the Hirschberg Building, Tallahassee.

Southern Health Exhibit.—Preliminary arrangements for the Southern Health Exhibit, to be held in Jacksonville in connection with the convention of the American Public Health Association the end of November and the first few days of December, are practically completed. Most of the larger cities of the South have arranged for their exhibits, and will furnish statistics and evidence of an educational nature to show the progress of health conditions in each community.

Hospital Corner-Stone Laid.—The corner-stone of the Pensacola Hospital was laid with fitting ceremonies, October 11. The building will cost about $400,000, will be five stories in height, with a frontage of 212 feet and a depth of 187 feet, and will contain accommodations for 100 patients.——The Escambia County Medical Society gave a dinner to the Sisters of Charity at San Carlos Hospital, San Carlos, after the ceremonies, at which the Hon. W. A. Blount acted as toastmaster.

ILLINOIS

Meeting of the Federation of Charities.—At the meeting of the Illinois State Conference of Charities and Correction held at La Salle, October 24-28, Dr. George T. Palmer of Springfield was elected president. Danville was selected as the place for the next meeting.

Meeting of Illinois State Tuberculosis Association.—At the meeting of the Illinois State Association for the Prevention of Tuberculosis at La Salle, October 28, the attitude of Governor Dunne in placing the embargo against the importation of tuberculous cattle in Illinois was commended and the association pledged itself to the repeal of the Shurtleff law, which deprives cities of the right to require the tuberculin testing of dairy cattle. The following officers were elected: president, Dr. George T. Palmer, Springfield; vice-president, Dr. Charles W. Lillie, East St. Louis, and Dr. Samuel Dodds, Cairo; secretary, James Minnick, Chicago, reelected.

Chicago

German War Dinner.—The German Medical Society held a "War Dinner" at the Hotel LaSalle, October 24, at which Dr. Maximilian Herzog narrated his experiences in his recent trip to the war zone, and Dr. Paul Carus made an eloquent plea for peace.

Appreciation of Service.—At a largely attended dinner at the Sherman Hotel, Chicago, November 9, the Chicago Pathological Society presented Dr. George Howitt Weaver with an appropriate testimonial of its appreciation of his efficient services as secretary of the society for twenty consecutive years. Short addresses were made by Dr. J. B. Herrick, Dr. W. E. Quine and Dr. L. Hektoen; Dr. Weaver responded.

Lying-In Hospital Opens Pavilion.—The recently completed Mother's Aid Pavilion of the Chicago Lying-In Hospital was opened for inspection October 30, when a reception was tendered by the directors to nurses and physicians of Chicago. The pavilion is a four-story brick building constructed at a cost of $85,000 and has accommodations for thirty patients, one-third of whom will be charity cases. The hospital was opened to the public November 3.

INDIANA

Antituberculosis Society Organized.—Clark County Society for the Study and Prevention of Tuberculosis has been organized at Jeffersonville. The society will control the funds raised by the sale of Red Cross seals and expects to institute public nursing and medical inspection of school-children.

Malpractice Suits Decided in Physicians' Favor.—In the malpractice suit brought by Harold Shana, Glenwood, for $15,000 against Drs. Hugh H. Elliott and Eli John Q. Paxton, both of Rushville, in which the plaintiff alleged that he had been treated for rheumatism when he really had a fracture, it was proved that the physicians had treated him for fracture and the suit was consequently decided in favor of the physicians. The father of the plaintiff sued the same physician a few weeks ago for $5,000 damages and the suit was decided against him.

Personal.—Major M. August W. Shockley, M. C., U. S. A., has been assigned as inspector and director of the National Guard of Indiana, Ohio, Kentucky, Michigan and West Virginia.——Dr. Charles A. Pfafflin, Indianapolis, has returned from abroad.——Dr. Marshall T. Shively, Marion, has resigned as a member of the board of public works on account of ill health.——Dr. Onis O. Melton, Hammond, who was operated on at the Augustina Hospital, Chicago, recently, has returned home convalescent.——Dr. Oscar E. McWilliams, Anderson, is reported to be ill at his home with pneumonia.

IOWA

Milk Laboratory Ready.—City Physician E. D. Middleton of Davenport announced on November 3, that the milk-testing equipment, recently ordered, had been installed and was ready for the use of the public.

KANSAS

Personal.—Dr. H. Michener, Wichita, as the result of Roentgen-ray burns, had his ring finger amputated October 21. This is the second operation and it is probable that another finger will have to be removed.——Dr. Thomas C. Long, Independence, was seriously injured in an automobile accident near Independence, October 29.——Dr. John W. Hains, Kansas City, suffered a compound fracture of the right leg and internal injuries by the overturning of his automobile near Vance, November 2.

MARYLAND

Medical Librarian Appointed.—Mrs. Ruth Briscoe has been appointed librarian of the medical department of the University of Maryland, Baltimore. The library now contains more than 11,000 volumes.

Stamp Vending Profits to Tuberculosis Sufferers.—The Maryland Association for the Prevention and Relief of Tuberculosis, in order to raise funds for the support of its work, has adopted the sale of stamps by an automatic stamp vending machine, in which two 2-cent stamps are sold for 5 cents, the extra cent going to the relief fund of the association.

Personal.—Dr. John F. Spearman, formerly of Baltimore, is on duty with the German forces near Strasburg.——Dr. Veader N. Leonard, Baltimore, who left on the first Red Cross expedition, is on duty at a 300-bed war hospital at Paignton, New Devonshire.——Dr. Eleanor B. Wolf, Baltimore, has sailed for India where she will be a member of the medical staff of the Guntur Hospital.——Dr. Henry Key is reported to be seriously ill with double pneumonia at the Hotel Altamont, Baltimore.

Semi-Annual Meeting of Faculty.—The semi-annual meeting of the Medico-Chirurgical Faculty of Maryland was held October 28 and 29 at Upper Marlboro and addresses were made by Dr. Randolph Winslow, Baltimore, president of the faculty, and Dr. Henry B. McDonnell, College Park, president of the Prince Georges' County Medical Society. A tablet was erected to Dr. William Beans, one of the founders and organizers of the faculty. Public meetings and a health exhibit were held under the auspices of the public instruction committee of the faculty during the meeting.

Sanatorium Opened.—The Pine Bluff Sanatorium near Salisbury, Wicomico County, a state institution for the treatment of advanced and chronic tuberculosis cases, has been formally opened. Dr. George W. Todd is superintendent of the institution and a special feature of the treatment is the single apartment system for patients. The institution can now accommodate forty patients, but within the next year will double its capacity. Indigent persons suffering from tuberculosis are admitted to the institution without charge on certificate of a reputable practitioner.

Hopkins Physicians Honor Their Dead.—At the twenty-fifth anniversary of the Johns Hopkins Medical School, tablets set in the walls of the hospital were dedicated to the honored dead. One of these tablets was in memory of Dr. John Hewetson who was assistant resident physician at the hospital from 1890 to 1894. Another in the lobby of the main hospital building is inscribed with the name of the late Dr. D. C. Gilman, first president of the university, with that of Dr. James W. Lazear of yellow fever fame and with that of Dr. Rupert Norton who died a short time ago while assistant superintendent of the institution.

MASSACHUSETTS

Free Mental Clinics.—Members of the staff of the Northampton and Monson state hospitals will hold a free clinic at the Springfield Academy of Medicine, Wednesday afternoons from 2 to 5 o'clock, at which they will see persons suffering from nervous disorders, worry, anxiety, mental disorders, incipient or fully established mental diseases or epilepsy.

Mental Hygiene Society Opens Office.—The Massachusetts Society for Mental Hygiene has opened an office at Room 313, Ford Building, 15 Ashburton Place, Boston. The officers of the society are: the Hon. Harvey H. Baker, Boston, president; Dr. Walter E. Fernald, Waverly, vice-president; Dr. Charles E. Thompson, Gardner, secretary; John Koren, Boston, treasurer, and Dr. Frankwood E. Williams, formerly of Ann Arbor, Mich., first assistant physician at the Psychopathic Hospital, Boston, has been appointed executive secretary.

Hospitals for the Insane to Keep Physicians on the Premises Constantly.—The Massachusetts State Board of Insanity has voted that each private licensed hospital under the supervision of the board having five or more committed patients, beginning October 1, shall have a physician on the premises constantly, and that private licensed hospitals having less than five patients, committed or not, shall, from the same day, have a resident physician who shall see each patient at least once every day; also that no private hospital shall keep mental patients on the third floor of any building without special permission in writing from the State Board of Insanity.

Personal.—A banquet was given to Dr. Charles F. McCaffrey, Somerville, recently appointed medical examiner, by citizens of that city and after the banquet a fur coat was presented to Dr. McCaffrey on behalf of those present.——Dr. Allen J. McLaughlin, U. S. P. H. S., assumed the duties of his office as health commissioner of Massachusetts, November 2.——Drs. Ernest P. Miller and Bernard W. Carey, Fitchburg, have returned from abroad.——Dr. Theodore S. Bacon, Springfield, has resigned as associate district medical examiner.——Dr. Karl R. Bailey has been appointed bacteriologist to the Boston Health Department.——Dr. Henry P. Walcott, Boston, has been reappointed chairman of the Metropolitan Water and Sewerage Board.——Dr. Augustus L. Chase, Randolph, has been reappointed a member of the Board of Registration in Medicine.

MISSISSIPPI

Special Sanitary Officer Wanted.—As the result of the propaganda of the Pure Milk Committee of Forrest County, efforts are being made to secure a full-time health officer for the county at a salary of $1,800 per year.

Personal.—Dr. Walter H. Rowan, who resigned as State Sanitary Inspector, to take effect November 15, was presented with a gold watch fob by the members of the Mississippi Public Health Association at its meeting in Jackson, October 28. Dr. Rowan has been appointed chief sanitary officer of the Republic of Costa Rica, and will also work under the auspices of the Rockefeller Foundation.——Dr. Willis Walley, Richton, has been appointed state sanitary inspector in place of Dr. Rowan.

MISSOURI

Personal.—Dr. Daniel R. Hill, commissioner of health and sanitation of Joplin, has been chosen chairman of the Joplin Board of Health, and Dr. Alonzo L. Carpenter, city physician, has been elected secretary.——Dr. William Boyd Hight, Queen City, was seriously injured by the overturning of his automobile, October 19.

St. Louis

Appointments of City Hospital.—Director of Public Welfare Tolkacz has announced 133 appointments on the visiting staff of the St. Louis City Hospital and municipal institutions, October 30. The appointments are divided into three classes: the first is composed of the nominees by the Washington University; the second nominees by St. Louis University, and the third nominees by the National University and appointments without regard to university connection.

Hospital Dedication.—The Barnes Hospital, erected and equipped under the terms of the will of the late Robert A. Barnes, who bequeathed $1,000,000 for its purpose, the balance of his estate being held as an endowment, was dedicated with impressive ceremonies, October 27. The dedicatory address was made by Bishop Hendricks of the Methodist Episcopal Church, South, who also unveiled a bronze bust of Robert A. Barnes. Washington University, with which the hospital is affiliated, was represented by its president and by Dr. George Dock, medical director.

NEW JERSEY

Personal.—Dr. Alonzo L. Leach has been elected president and Dr. Virgil M. D. Marcy, Jr., health inspector of the Cape May Board of Health.

NEW YORK

Medical Clubhouse Opened.—The Rochester Medical Society opened its new clubhouse for public inspection, November 4, and held an informal reception from 4 in the afternoon until 10 in the evening. The building is in colonial style and accommodates a medical library, a dining-room, an assembly room for the society and one for the Blackwell Medical Society. The property was purchased in June for $35,000 and the building has been remodeled and fitted for its present uses.

Quarantine Against Foot-and-Mouth Disease.—An order quarantining New York state against foot-and-mouth disease was issued on November 7 by the commissioner of agriculture, to become effective November 9. Another order prohibits the transportation of cattle from Canada into this state and another will forbid the feeding of skimmed milk and whey to calves and pigs in districts in which the disease exists. The quarantine will mean that there can be no movement of animals from one county to another until the animals have been inspected and a permit issued.

Health Exhibits at State Fair.—During August and September the State Department of Health had exhibits at fifty-three county fairs and 575,000 people had the opportunity of seeing them. In addition to these fairs the exhibits have been shown at the state fair, Syracuse and the Rochester Industrial Exposition, which have a combined attendance of 750,000. Five child welfare and three rural sanitation exhibits have been used at these fairs and the routes have extended from the St. Lawrence to Rockland county and as far west as Chautaqua and Niagara counties. The interest in the child welfare campaign has been extended to the county fairs and many more requests for the exhibits were made than could be granted.

Personal.—A reception was given at the Adirondack Cottage Sanatorium, Saranac Lake, October 28, for Dr. and Mrs. Francis B. Trudeau, Dr. and Mrs. M. Lawrason Brown, and Dr. and Mrs. Frederick H. C. Heise.——Dr. Regina Flood Keyes, Buffalo, sailed from New York, October 31, to join the staff of the American Ambulance Hospital, Paris.——Dr. Charles C. Kimball has been appointed a member of the board of health of Watertown, vice Dr. Olmsby O. Stowell, resigned after serving as a member of the board for fourteen years and as its president for seven years.——Dr. John L. Heffron, dean of the College of Medicine of Syracuse University, has been appointed a member of the advisory medical council of the state university for a term of five years.——Dr. Frederick Luke Classen has been appointed attending physician in connection with the state insurance fund of the compensation department with office at Albany.

New York City

New Clinic for Cripples Opened.—The new dispensary in connection with the Hospital for Deformities and Joint Diseases, of which Dr. Henry W. Frauenthal is surgeon in chief, was dedicated on November 3. The new dispensary is a six-story building which with its site cost $130,000, of which amount all but about $10,000 has been paid. A gift of $1,000 from the Young Ladies' and Gentlemen's League was announced at the dedication. Among those who made addresses on this occasion were Dr. Abraham Jacobi and Dr. Katherine Davis.

Gift to University.—A gift of $113,750 from William K. Vanderbilt has enabled Columbia University to take title to the north half of the block bounded by 116th and 117th streets, Amsterdam Avenue and Morningside Drive. This property was acquired as a site for the new medical school, but the amalgamation of the College of Physicians and Surgeons and the Presbyterian Hospital has so modified the plans of the medical school that it has been decided to await further developments. The site is now occupied by the temporary building which houses the Crocker Research Laboratory.

Revising the Sanitary Code.—A letter has been addressed by the commissioner of health to each member of the advisory council and the medical advisory board announcing that a general revision of the sanitary code has been undertaken, with the purpose of bringing the code into conformity with the great body of municipal ordinances recently remodeled by the codification committee of the board of aldermen. It is pointed out that this occasion affords an opportunity for improving the code by the redrafting of existing sections, by the omission of superfluous contents, and by the inclusion of desirable new matter.

Society for Clinical Study.—The annual meeting of "The Society for the Advancement of Clinical Study" of New York City, will be held at the Academy of Medicine, 17 West Forty-Third Street, on Wednesday afternoon, November 18, at 5 p. m. This society, organized for the purpose of maintaining a bureau of information, will furnish to resident and visiting physicians definite information regarding the clinical facilities of the hospitals and laboratories of the city of New York. A bulletin board has been installed at the Academy of Medicine in charge of a special clerk, and on this all hospital clinics, both medical and surgical, are posted daily.

New Appointments at Columbia University.—It has been announced that clinical instruction for the medical students of the College of Physicians and Surgeons is hereafter to be provided at the Montefiore Home and to carry on this instruction the following appointments have been made: Dr. Siegfried Wachsmann, Berlin, professor of clinical medicine; Drs. George L. LaPorte and Simon Philip Goodhart, assistant professors of clinical medicine; instructors in laryngology, Dr. Arthur P. Goll and Dr. John Leshure. Dr. Warfield T. Longcope was appointed to serve as a member on the board of managers of the George Crocker Special Research Fund.

Enforcing the New Milk Regulations.—During September eighty dairies were excluded from business in this city for failure to comply with the minimum requirements for the production of Grade "C" milk. Shipments from four creameries were ordered degraded from Grade "B" to Grade "C," as the bacterial content of the milk shipped from two of these creameries was found to be continually excessive, and the other two were ordered degraded because of improper pasteurizing apparatus. Samples for bacterial examination were taken at forty-four pasteurizing stations during the month. Their examination showed that the process of pasteurization was conducted in a very satisfactory manner, and that in all but nine the regulations were being closely followed. Eleven new pasteurizing plants have been approved during the month. Nearly 24,000 specimens of milk as offered for sale in the city were examined and of this number only sixty-three were found to be above the maximum temperature permitted by the department's regulations. In addition 579 samples of raw milk were taken and on chemical analysis ninety-nine were found to be below the standard.

Personal.—Dr. H. McDonald Peggs has gone to Europe to make a reconnoissance in the war zone for the British Imperial Club. He goes first to England and then to the front to learn what surgeons, nurses and supplies are needed. The club will send what is recommended. Dr. Peggs then expects to work in the British hospital corps.——Dr. John Ravenswood Hicks, New Brighton, has accepted Dr. Hermann M. Biggs' request to help organize local health work on such lines as promise a maximum return for a given amount of money expended. Dr. Biggs believes that before such an adjustment can be effected it will be necessary to secure some uniformity in health department accounting, so that the expenditures for various purposes in various communities may be fairly compared.——Dr. E. C. Baldwin of Ft. Wadsworth, bacteriologist and director of the old laboratory at the Quarantine Station, has resigned in favor of Dr. Oscar Teague, recently of Cornell.——Dr. William E. West was seriously injured in a collision between his touring car and an Erie train at a grade crossing near West Haverstraw, N. Y., November 2.——Dr. John Herman Branth and family narrowly escaped death in the burning of his gasoline launch in the Hudson River, October 19.

OHIO

Small-Pox on Ore Steamer.—The steamer *William P. Palmer* left Conneaut on October 17 for Duluth. One of the crew left behind at Conneaut developed small-pox the same day. The remainder of the crew were vaccinated at Duluth and the cabin in which the patient had slept was disinfected. On the return of the steamer to Conneaut, October 25, she was placed in the hands of the State Board of Health by her owners, the Pittsburgh Steamship Company. Permission was given to unload her cargo. The crew was then revaccinated and the steamer laid up at the dock with sanitary policemen to prevent the crew from leaving. No further cases of small-pox have developed and the period of quarantine expires shortly.

Conference of State with Local Boards of Health.—The fortieth conference of the State Board of Health with representatives of local boards of health was held in Cincinnati on Oct. 22-23, 1914. The attendance at the three sessions averaged about 250. The first session was devoted to a discussion on rural hygiene. Mr. John W. Hill, president of the state board, spoke of measures to prevent stream pollution. The chief engineer dealt with public improvements in villages from the standpoint of the sanitarian, and Dr. Paterson and Miss Britton discussed various phases of public health nursing. The evening session was devoted to illustrated lectures by Drs. Emery R. Hayhurst and Frank G. Boudreau, Columbus, on occupational diseases and communicable diseases, respectively. The third and final session was devoted to a discussion of model rules and regulations for villages and townships, rural school sanitation, and the relation of the rural health officer to his city brother. Dr. Eugene F. McCampbell, secretary and executive officer of the board, brought the session to a close by his discussion of proposed public health legislation. The most important measure he discussed was that dividing the state in large health units, each under the care of a full-time trained health officer.

Cincinnati

Work Cure for Convalescents.—The Cincinnati Hospital Board has adopted the work cure for convalescents and work rooms will be established as soon as the institution is opened. Among the work to be inagurated will be basket weaving and rug making.

Personal.—Dr. Arthur C. Bachmeyer, superintendent of the Municipal Tuberculosis Sanatorium, has been appointed superintendent of the Cincinnati General Hospital, succeeding Dr. Charles F. Sanborn, resigned.——Dr. Walter E. List retains his post as assistant superintendent of the hospital and Dr. Harry Freudenberger has been appointed assistant in charge of the Tuberculosis Sanatorium.

Holmes Honored by Staff.—At a meeting of the staff of the Cincinnati General Hospital, October 29, resolutions were unanimously adopted approving of the new Cincinnati General Hospital and recognizing the faithfulness, efficiency and self-sacrificing devotion of Dr. Christian R. Holmes, "the one man chiefly instrumental in bringing the construction of the institution to a successful conclusion."

New Hospital Plans.—In accordance with the plans of the mayor and Dr. Christian R. Holmes, safety director, the Tuberculosis Sanatorium and General Hospital will be placed under one head who will receive a salary of $5,000 a year. Each hospital will have an assistant superintendent with a salary of $2,000 a year and the payroll of the General Hospital will amount to about $150,000. It is expected that the hospital will be ready for opening January 1.

PENNSYLVANIA

County Medical Society Building.—Plans have been completed for the new building of the Luzerne County Medical Society, and work has already begun. It is a fireproof structure of brick and stone, and will cost about $20,000.

Personal.—Dr. Robert G. Boak, Newcastle, was seriously injured in a collision between his automobile and the upright supports of a railroad crossing.——Dr. William D. Danner, Glenville, who was operated on October 10 at the West Side Sanitarium, York, returned home convalescent a week later.——Dr. Henry J. Benz has succeeded Dr. Henry B. Burns as superintendent of the Bureau of Child Welfare of Pittsburgh.——Dr. Harry W. Salus, Johnstown, has been appointed state medical inspector for Cambria County in the Department of Labor and Industry.

Scarlet Fever, Diphtheria and Typhoid.—Between October 1 and 29, 241 cases of scarlet fever were reported in Pittsburgh. Twenty-seven cases of virulent scarlet fever with three deaths are reported from Donora, Washington County, and twenty-five cases from Blue Ball, Lancaster County. Schools have been closed at Confluence, Somerset County, and New Florence, Westmoreland County, on account of scarlet fever. In Pittsburgh, 120 cases of diphtheria were under quarantine October 29. The Pittsburgh Department of Public Health has been distributing antitoxin at low prices. Since the first of the year, 23,718,000 units of antitoxin have been distributed at a cost of almost $10,000. In Monessen, Westmoreland County, fifty-nine cases of typhoid were reported October 29.

Philadelphia

Society Anniversary. — The Philadelphia Neurological Society announces that it will celebrate the thirtieth anniversary of its foundation by holding a special scientific meeting on November 27, followed by a banquet on November 28.

Meat Laws Affected.—Several new regulations relative to the sale of meats have recently become effective, the most important of which is the rule which governs the sale of meat of animals affected with disease. The parts not affected may be sold only after a process of sterilization and cooking and canning and marked "Second class meat, sterilized."

The Alvarenga Prize: Correction.—In a notice sent by the College of Physicians and Surgeons of Philadelphia regarding the award of the Alvarenga prize, which appeared in The Journal of November 7, page 1680, the title of the essay for which Dr. Herman B. Sheffield was awarded the prize, should have been "Idiocy and Allied Mental Deficiencies in Infancy and Early Childhood."

Stockyards Under Quarantine.—As a preventative measure against the spread of foot-and-mouth disease among cattle, a quarantine was placed November 7 on the stockyards. While the disease had not appeared among the cattle there, the animals on hand came from Chicago and other infected districts. On November 9 inspectors made a canvass of all farms within a 10-mile radius of the city.

Police Orders to Aid Sick.—Among the new orders issued to the police are regulations requiring that women accompanied by babies or small children be sent in patrol wagons to the city hall or county prison and not in police vans, that a physician accompany a woman removed from her home to the police station and a hospital in a patrol wagon and that a police matron be sent with abandoned infants who are removed to the Philadelphia Hospital.

Personal.—A smoker was given by the Philadelphia County Medical Society at the University Club on October 28, in honor of Dr. John B. Deaver.——On the occasion of the seventy-eighth birthday of Dr. Daniel Baugh, October 22, the medical and legal professions of the city joined in doing honor to the founder of the Daniel Baugh Institution of Anatomy. Practically the entire faculty of the Jefferson Medical College and the entire staff of the Jefferson Hospital were present.——Dr. Charles J. Hatfield has been elected executive secretary of the National Association for the Study and Prevention of Tuberculosis to succeed Dr. Livingston Farrand, New York, resigned.——Dr. Frank H. Hustead has been elected surgeon-general to the Association of Soldiers of Foreign Service of the United States.——Dr. William Penn Vail was elected by the Philadelphia County Medical Society to fill the unexpired term of assistant secretary of the board of directors, vice Dr. Arthur H. Hopkins, resigned.

RHODE ISLAND

Dr. Peters' Work Recognized.—In recognition of the twenty-five years of service as superintendent of the Rhode Island Hospital of Dr. John M. Peters, nearly two hundred physicians of the state gathered at the Turks' Head Club, Providence, October 28, at a dinner in honor of Dr. Peters. Dr. G. Alder Blumer, superintendent of Butler Hospital, officiated as toastmaster. Addresses were made by Dr. Herbert B. Howard, superintendent of the Peter Bent Brigham Hospital, Boston; Hon. Charles C. Mumford, who spoke in behalf of the trustees and the general community, and Dr. Jacob C. Rutherford, who on behalf of the medical profession of the state, presented Dr. Peters with a gold watch and chain.

VIRGINIA

Personal.—The home of Dr. Samuel H. Price, Montvale, was destroyed by fire, October 16, with a loss of about $8,000, partially covered by insurance.——Former President S. C. Mitchell of the Medical College of Virginia, Richmond, delivered the principal address at the anniversary of the surrender of Yorktown, October 20.

Tuberculosis Camp Without Funds.—The management of the Pine Camp Tuberculosis Hospital announces that unless the city of Richmond takes over the management of the institution, it will be necessary to close it this month, and the thirty-six patients in an advanced state of tuberculosis will either be left destitute or must be cared for by some other charity.

Alumni Association Organized.—A University of Virginia Alumni Association has been recently organized to bring together the alumni of the university and to further the interests of the school in the South. The following officers have been elected: Dr. Hugh H. Young, Baltimore, president; Dr. John Staige Davis, University, vice-president; Dr. Seale Harris, Mobile, Ala., secretary; Dr. Thomas V. Williamson, Norfolk, treasurer.

Malarial Survey of the State.—Surgeon Rudolph H. von Ezdorf, U. S. Public Health Service, has completed a malarial survey of Virginia, and reports that he has located breeding places of the malarial mosquito and has taken steps toward their eradication. The next step of the work is the determination of how many people are carrying malaria in their blood, while the third part of the work is educational. The State Board of Health proposes to do a considerable amount of educational and eradicatory work during the year.

State Society Meeting.—The Medical Society of Virginia held its forty-fifth annual meeting in Washington, D. C., October 27 to 29, under the presidency of Dr. Stephen Harnsberger, Catlett. Dr. Harnsberger and Surgeon-General William Crawford Gorgas, M.C., U. S. Army, were elected honorary members of the society, and the following officers were elected: president, Dr. Samuel Lile, Lynchburg; vice-presidents, Drs. Samuel B. Moore, Alexandria; Joseph T. Buxton, Newport News, and John W. Preston, Roanoke; secretary, Dr. Paulus A. Irving, Farmville (reelected); treasurer, Dr. Mark W. Peyser, Richmond (reelected); delegate to the American Medical Association, Dr. Robert C. Bryan, Richmond, and alternate, Dr. Sparrell S. Gale, Roanoke. Richmond was selected as the next meeting place.

GENERAL

Tri-State Physicians to Meet.—The Tri-State Medical Association of Virginia and the Carolinas will hold its seventeenth annual meeting at Charleston, Feb. 17 and 18, 1915, under the presidency of Dr. Edward C. Register, Charlotte, N. C.

Ohio Valley Physicians Hold Meeting.—At the sixteenth annual meeting of the Ohio Valley Medical Association held in Evansville, Ind., November 4 and 5, the following officers were elected: president, Dr. E. Otis Smith, Cincinnati; vice-presidents, Drs. George M. Young, Evansville; William Shimer, Indianapolis, and William M. Harsha, Chicago; secretary-treasurer, Dr. Benjamin L. W. Floyd, Evansville (reelected).

Bequests and Donations.—The following bequests and donations have recently been announced:

The Sisters of Charity (colored), of Indianapolis, have raised nearly $10,000 for the purchase of property on which a hospital is to be erected for the exclusive use of colored people.

Jewish Hospital, Pennsylvania Institution for the Instruction of the Blind, Wills Eye Hospital, Pennsylvania Hospital, and Presbyterian Hospital, Philadelphia, each $5,000 by the will of Henry B. Palethorp.

University of Pennsylvania, $50,000; Hospital of the Protestant Episcopal Church, Philadelphia, $10,000; Children's Aid Society, Philadelphia, $10,000; and Pennsylvania Prison Society, Philadelphia, $10,000, by the will of Miss Anna M. Blanchard.

German Society, $5,000, for the endowment of a free bed in the German Hospital, by the will of William Lutz.

First-Aid Cars.—Dr. Matthew J. Shields, Scranton, Pa., one of the staff of the American Red Cross Aid Department, with First-Aid Car Number 3, arrived at the Terminal, Washington, D. C., November 4, and lectured on November 5 in the car to the employees of the Washington Terminal Company on "Accident Prevention and First Aid." The car was then taken to Richmond, Va., where Dr. Shields lectured, November 6. First-Aid Cars Numbers 1 and 2 are touring the United States the year round, giving free lectures to workman in shops, factories, mines, etc., on "Accident Prevention and First-Aid Methods."

To Reduce Death in Mines.—As the result of a report by the committee of physicians, consisting of Dr. Walter B. Cannon, Harvard University, chairman; Drs. George W. Crile, Cleveland; Joseph Erlanger, St. Louis; Dr. Yandell Henderson, Yale University, and Dr. S. J. Meltzer, Rockefeller Institute for Medical Research, recommendations have been made by the Bureau of Mines regarding methods used by miners in resuscitating fellow workmen overcome by electric shock or gases in places that cannot easily be reached by physicians. These recommendations applied equally well to individuals suffering from the effects of illuminating gas poisoning or electric shock.

Holiday Gifts for Culion Lepers Requested.—Dr. Victor G. Heiser, United States Director of Health in the Philippines, suggests that Americans send some little kindly token of sympathy next Christmas to the Culion lepers. Readers who wish to remember the lepers should do so at once, because it requires several weeks to reach the Culion leper station. Send prepaid parcels, checks or money orders to Mr. Fleming H. Revell, 158 Fifth Avenue, New York City, treasurer of the U. S. A. Committee, the Mission of Lepers, who has consented to receive and forward all gifts. All parcels should be securely wrapped, marked and addressed, also bearing the name of the sender.

Red Cross Work in France.—Following up its recent donation of $25,000 to the American Ambulance Hospital, Paris, the American Red Cross has asked Ambassador Herrick if he will receive $10,000 to be used at his discretion in furnishing surgeons, nurses, supplies, or whatever is most needed in Vierzon, Dinard, Dieppe and Pau, from which points appeals for assistance have come. It is said that there are 1,200 gravely wounded French and German soldiers in Vierzon, and at Boulogne there are 400 wounded lying on straw, with only one surgeon, an American, to attend them.——The American Red Cross arranged on November 4 to ship 5,000 heavy blankets to distressed non-combatants in Belgium.

The Foot-and-Mouth Epizootic.—The Chicago stockyards were closed for a ten-day period at the end of the day, November 5, by the Illinois Live Stock Commission in the attempt to check the epidemic of foot-and-mouth disease now affecting six states. No cattle will be permitted to be shipped to or from the yards. Cattle already shipped from the uninfected areas which reached the yards by 5 p. m. November 5 were to be admitted, but after that hour none were to be received until the yards and buildings had been thoroughly fumigated and disinfected and the quarantine lifted. The stockyards of Buffalo, New York and Indianapolis have been quarantined and New York, Maryland, Indiana, Michigan, Illinois, Pennsylvania, Wisconsin and Ohio and other states have also been quarantined by the federal authorities. Interstate shipments of cattle, sheep and swine are prohibited from the states now quarantined. The United States Department of Agriculture has pronounced the epidemic the most virulent and dangerous the country has ever experienced. It is probable that Congress will be asked for an appropriation to suppress the disease.

The Small-Pox Situation in the Middle West.—Under the policy of resistance by the Dowieite community in Zion City, Ill., to the efforts of the Illinois State Board of Health, the number of cases of small-pox in that place has increased to nearly fifty. November 3 the overseer of the community under protest consented to allow the state authorities to take charge of the situation. Dr. C. E. Crawford, medical inspector for the Illinois State Board of Health, at once instituted a rigid quarantine on the premises of all persons affected with small-pox and appointed six deputy inspectors to assist him in maintaining quarantine. He also prohibited all public gatherings, canvassing from house to house, and ordered all children under 16 years of age to remain at home. All the inhabitants who are willing are being vaccinated. Under the law the Illinois State Board of Health has no power to compel vaccination. The surrounding towns have already declared a rigid quarantine against Zion City. Some manufacturing establishments in Waukegan, Ill., have been closed down on account of the threatened spread of the disease. The number of cases at Neponset, Ill., has increased to thirty, and schools and churches have been compelled to close temporarily.——Forty cases of small-pox were reported from Whiting, Ind., November 2. The health authorities are said to have the situation in hand now. Fifty cases are reported from Cromwell, Noble County, Ind., by J. W. Moore, county health officer.——Forty-four cases of small-pox were reported in Milwaukee, Wis., October 28, and the commissioner of health believes that many cases of the disease in mild form have not been reported.——There have been six cases in Battle Creek, Mich. Cases are also reported from Allegan, Mich. Nineteen cases of mild small-pox, at first diagnosed as chicken-pox, are reported from Manistee County, Michigan, near Kaleva. Two schools have been closed and an area of 10 square miles is under quarantine. Six cases are reported from Escanaba, Mich., and nearly twenty cases from Alamo, Mich. The disease throughout the West seems to be present in a mild form.

WAR NOTES

Cholera in Galicia.—It was officially announced in Vienna, November 6, that there are 256 cases of cholera in Galicia of which 126 are reported from Przemysl.

American Surgeons Appreciated.—A dispatch from London states that the American hospitals at Gleiwitz and Cassel are doing such satisfactory work that the government is about to request that three more American surgeons be sent to Germany.

Aid for Non-Combatants.—In addition to the supplies sent to Belgium, which were noted in The Journal of last week, the American National Red Cross has cabled $10,000 to Minister Van Dyke at the Hague for Belgium refugees in Holland and has also sent a number of boxes of clothing for women and children and 500 pairs of blankets.

Mikado Gives Money for Hospital.—Emperor Yoshihito has given $25,000 toward the foundation of St. Luke's International Hospital, Tokyo, to be conducted under the auspices of the Protestant Episcopal Church. The institution is to be the most elaborate in the far east and will cost about one-half million dollars. The substantial imperial support will, it is believed, assure the success of the enterprise.

More Medical Aid from the United States.—Mrs. Harry Payne Whitney sailed for Europe on the *Lusitania* November 4, with a staff of four surgeons and fifteen trained nurses to establish a field hospital in northern France. Ten motor ambulances and a large quantity of medical supplies and clothing sufficient for 3,000 men, women and children were shipped to France by Mrs. Whitney, October 31. The surgeons who accompanied Mrs. Whitney are Drs. Walton Martin, New York City, in charge of the field organization; Drs. Karl Connell and Donald Gordon, New York City; Dr. W. E. Drennan, Birmingham, Ala.

Prize Given for Relief Work.—The Société Médicale des Hôpitaux de Paris appointed last summer a delegate to the sixth congress of the Association of French-Speaking Physicians in North America, which was announced to be held at Quebec, August 31 to September 3. At the same time it notified the association that it would give a prize of $200 for the best paper read at the meeting. In acknowledging this courtesy the executive committee, writing August 2, expressed their appreciation but said that as the cable had just brought word that war was declared in Europe they suggested that the munificent offer for a prize be devoted instead to the relief of the wounded in the war. This has been done, the society turning over to the fund for the aid of the wounded five-fold the amount designated for the prize.

PARIS LETTER

Paris, Oct. 22, 1914.

Hygiene in War

At the last meeting of the Parisian section of the Association générale des hygiénistes et techniciens municipaux, Dr. Frederic Bordas, temporary professor at the Collège de France, suggested a number of ingenious devices for use in war time.

It is not always easy to procure hot water for baths, dressings or hot drinks in a temporary hospital. In the country, one may take one of those steam engines used to supply power on farms. The steam from the generator is turned with free escapement into a barrel or other water-container and in a few minutes the temperature of the water is raised to the boiling-point. This sterilized water may be used for washing wounds or for drinking. When the temporary hospital is near a factory, a jet of steam from the boiler will answer the same purpose.

To protect soldiers from the cold, the Japanese, during the war in Manchuria, used paper clothes made from rice-straw or bamboo. This paper, though proportionately expensive, gives very good results. Equally good results have been obtained from wrapping-paper rendered impermeable by being lightly greased with liquid petrolatum and used as an interlining between two layers of cloth.

The secretary of the Association des Hygiénistes et techniciens municipaux, M. Samuel Bruère, chemist of the laboratory of toxicology, recommends, for the sterilization of the soldier's drinking-water, to be done by the soldier himself, the use of: (1) 0.25 gm. tablets of calcium glycerophosphate and potassium phosphate with 7 mg. of potassium permanganate; (2) tablets of 0.5 gm. of citric acid with the precise quantity of sodium hypophosphite to reduce the excess of permanganate. Each soldier could easily be supplied with a little box or metal case containing a certain number of these tablets and thus could himself sterilize the amount of water he needs for his own use. In each liter (quart) he would drop a pink tablet (potassium permanganate) then five minutes afterward a white tablet (sodium hypophosphite). Numerous practical trials with yellow and turbid Seine water have proved that a dose of 7 mg. of potassium permanganate per liter in contact for five minutes in the presence of calcium glycerophosphate is sufficient to eliminate the colon bacillus. At the end of five minutes, the addition of the second (hypophosphite) tablet reduces the excess of permanganate in nine or ten minutes. From violet the water becomes citron yellow. A little while later it loses color. At the end of ten more minutes, the color is hardly perceptible, and it disappears completely in twenty minutes, leaving no trace of the yellowish color of the untreated water. The treatment requires altogether not more than twenty-five or thirty minutes.

A New Military Hospital in Paris

The Grand-Palais is now used by the military health service, which has established there a hospital remarkable for the vast extent which it occupies and for its situation, one of the most attractive in Paris. The hospital was opened October 13 by Dr. Février, director of the military health service. With the aid of M. Deglane, architect of the Grand-Palais, the immense exposition galleries have been rapidly transformed into hospital wards at slight expense. The hospital has 1,200 beds and receives convalescents especially. Some wards have been furnished by the French Red Cross, others by the proprietors of some large mercantile establishments in Paris and others with material belonging to the military health service.

The Blue Cross

Mme. Millerand, wife of the minister of war, has just accepted the presidency of a new society, the Blue Cross, organized on the model of the British Blue Cross, for the purpose of collecting from the battlefields and caring for wounded horses from which more service may be expected and which would otherwise die slowly of their wounds and of hunger where they have fallen. Eight Blue Cross ambulances are already operating at the front. They have been able to save many horses, a number of which have gone back to their regiments.

Measures Against Infectious Diseases in Algeria

Exceptional measures have just been decreed against epidemic and infectious diseases in Algeria. Not only physicians, but also heads of families and lodgers are bound to report to the mayor any case of infectious disease coming to their knowledge. The mayor is to report such cases to the local sanitary authorities.

The University of Aix Offers Hospitality to the Belgian Universities

At a meeting held at the Aix city hall, presided over by the mayor and university authorities, it was unanimously decided to make an official offer to the Belgian government to receive the Belgian universities, both professors and students, at the University of Aix. The city will defray the expenses of the students' lodging. The university will request that our minister of public construction permit the Belgians to receive instruction free and allow the University of Aix-Marseilles to confer French university degrees on the Belgian students.

Bureau of Chemical Products

A temporary bureau of chemical and pharmaceutical products has just been created to last during the war. Its function is to cooperate with our manufacturers with regard to production and distribution. It will investigate supplies, gather figures on our exact present capacity for production, develop production as much as possible to meet the needs of the civil population and, so far as possible, the needs of the allies. It will also attempt to establish in France the manufacture of products which hitherto have been monopolized by foreign countries. The bureau will be a division of the Department of Commerce, and its head will be M. Behal, professor at the Ecole supérieure de pharmacie de Paris and a member of the Académie de médecine.

Prohibition of Alcoholic Drinks

I mentioned in a previous letter (The Journal, Sept. 19, 1914, p. 1044), the prohibition of the sale of absinthe in drinking shops. This prohibition has been extended to apply to drinks similar to absinthe, that is, to bitters and all *apéritives* except those with a wine base. This measure applies to all France. Some military commanders have, in addition, taken such local measures as the closing of drinking-shops, the prohibition of the sale of alcohol in certain places, or the strict regulation of hours of closing. All these measures have already given good results with respect to the habits, behavior and health of the population. It is to be hoped that the new habits contracted during war may have an influence in suppressing the scourge of alcoholism.

The Soldiers' March

Dr. L. Manouvrier, professor at the Ecole d'anthropologie de Paris, at one of the last sessions of the Académie des sciences, read a paper on the grouping of marching soldiers, not according to their height but according to the length of the leg, measured from the great trochanter to the ground. When the soldiers with the shortest legs are put in front, the troop marches most regularly and with a minimum of fatigue.

Marriages

Robert Morton Wolfe, M.D., Port Carbon, Pa., to Miss Cora M. Bagenstose of Shoemakersville, Pa., at Philadelphia, October 3.

William Graves Phillips, M.D., Helena, Ky., to Miss Elizabeth Byram Ewan of Flemingsburg, Ky., October 20.

Alexander S. Waiss, M.D., San Francisco, to Miss Anna M. Wueck of Reading, Pa., at San Francisco, August 24.

Onnie Earl Stevenson, M.D., Labette, Kan., to Miss Nancy Wilmetta Belknap of Altamont, Kan., October 11.

Frank Beeby Conterman, M.D., Ilion, N. Y., to Miss Beatrice Thornton Buley of Syracuse, N. Y., October 15.

John Sullivan Clifford, M.D., Charlotte, N. C., to Miss Mary Agnes Keely, at Nashua, N. H., October 21.

John Adolph Greene, M.D., to Miss Huldah Elizabeth Pettengill, both of Rumford, Me., October 21.

Charles Walsh McQuillen, M.D., Cascade, Ia., to Miss Frances Bradley of Iowa City, Ia., October 19.

John Hudson Blauvelt, M.D., Beacon, N. Y., to Miss Mae Costello Furman of Nyack, N. Y., October 21.

John Harold Powers, M.D., Pueblo, Colo., to Miss Edith May Brooks of Wellington, Kan., October 20.

Edmund William Butler, M.D., San Francisco, to Miss Wilma Jacobs of Berkeley, Cal., October 19.

William Alvah Parks, M.D., to Miss Mary Alice Sell, both of Akron, Ohio, September 15.

Jacques J. Roth, M.D., New York City, to Miss Nellie A. Levy of Passaic, N. J., October 21.

Frank Anson Becker, M.D., to Miss Edna Refsum, both of New York City, October 21.

Walter Dent Wise, M.D., to Miss Agnes Bordon Whiting, both of Baltimore, October 20.

Oscar Lewis Zelle, M.D., to Miss Elizabeth Kane, both of Springfield, Ill., October 20.

Roy Newton Fuller, M.D., to Miss Lena Hesse, both of Tulare, Cal., October 21.

Charles Francis Yerger, M.D., to Miss Helen Zegar, both of Chicago, October 17.

Deaths

Edward Hodges, M.D. Long Island College Hospital, 1895; a Fellow of the American Medical Association and of the Association of Military Surgeons of the ates; assistant surgeon of the Forty-Seventh New nfantry, U. S. A., during the Spanish-American War service in Porto Rico; for several years captain and tant surgeon, N. G., N. Y., assigned to the Twenty-Third try; once president of the Long Island Medical Society; ng surgeon to the House of St. Giles the Cripple, Brook- nd associate visiting surgeon to Williamsburg, Bush- Swedish and Samaritan Hospital; died at his home in lyn, October 30, from pneumonia, aged 44.

h Smith Richards, M.D. Bellevue Hospital Medical 1875; a Fellow of the American Medical Association; director of the Dr. W. H. Groves Latter Day Hospital, and surgeon to the San Pedro, Los Angeles Lake Railroad, Salt Lake City; for many years geon to the Holy Cross Hospital, Salt Lake City; home, October 30, from Hodgkin's disease, aged 66.

Maximilian von Starkloff, M.D. University of ermany, 1854; surgeon of the Forty-Third Illinois fantry and medical director of the First Division, Corps during the Civil War; formerly pro- edic surgery in the Marion-Sims-Beaumont cine; for many years a practitioner of St. home in that city, October 31, aged 86.

M.D. Medical College of Ohio, Cincin- *of the Kentucky State Medical Associa-* the Civil War and past department and Army of the Republic, State of s a member of the state legislature ited States in China; died at his tober 23, aged 71.

John J. Castellanos, M.D. Tulane University, New Orleans, 1856; a member of the Louisiana State Medical Association, and second vice-president of the Orleans Parish Medical Society in 1892; *adjunct professor of surgery* and lecturer on surgery and later professor of surgical anatomy in the Charity Hospital Medical College, New Orleans; died at his home in that city, October 29.

Cyrus Jay Seltzer, M.D. University of Pennsylvania, Philadelphia, 1881; for twenty years *assistant surgeon at the Wills Eye Hospital*, Philadelphia; laryngologist to the Philadelphia Hospital and Philadelphia Polyclinic Hospital; for the last five years a resident of Lebanon, Pa.; died at his home in that city, October 23, from heart disease, aged 59.

John R. Colburn, M.D. Washington University, St. Louis, 1878; *a Fellow of the American Medical Association; president* of the Pacific Coast Railway Surgeons Association in 1907; for several years chief surgeon of the Salt Lake, San *Pedro and Los Angeles Railway*; died at his home in Los Angeles, October 27, from heart disease, aged 60.

Franklin Pierce Miller, M.D. New York University, New York City, 1876; visiting physician to the Bushwick Hospital and to the outpatient department of St. Mary's Hospital, Brooklyn; since his retirement in 1912, a resident of Tappen, N. Y.; died in the Long Island College Hospital, Brooklyn, October 17, aged 60.

Roland F. Blount, M.D. Central College of Physicians and Surgeons, Indianapolis, 1898; of Rushville, Ind.; a Fellow of the American Medical Association; died in a hospital in Indianapolis, August 28, from carcinoma of the pancreas, seventeen days after an operation on the gall-bladder, aged 40.

Frederick Joseph McNulty, M.D. Cooper Medical College, *San Francisco, 1896*; of Yreka; *a member of the Medical Society of the State of California*; physician and surgeon to the Siskiyou County Hospital; died at Oakland, Cal., while being taken to San Francisco for special treatment, October 21, aged 45.

Floyd Benton Parke, M.D. University of Buffalo, N. Y., 1879; a Fellow of the American Medical Association and *prominent as a dermatologist; health officer of Elmira township* and health commissioner of the city of Elmira; died at his home in Elmira, N. Y., October 9, from heart disease, aged 58.

James Sanford Denison, M.D. University of Tennessee, Nashville, 1904; a member of the Oklahoma State Medical Association and president of the McCurtain County Medical Society; *a physician in the United States Indian Service*; died at his home in Garvin, Okla., October 29, from malarial fever, aged 38.

William H. Bramblitt, M.D. New York University, New York City, 1857; a member of the Medical Society of Virginia; surgeon in the Confederate Army during the Civil War; died at his home in Pulaski, Va., October 30, from pneumonia following a fracture of the hip six days before, aged 85.

Franklin Fremont Finical, M.D. Starling Medical College, Columbus, Ohio, 1893; a member of the Ohio State Medical Association; *assistant surgeon of the Pennsylvania System* at Denison, Ohio, and a member of the Denison Board of Education; died at his home in that city, October 23, aged 51.

Daniel D. Neff, M.D. Bellevue Hospital Medical College, 1894; a member of the Syracuse Academy of Medicine; was found dead in his home in Syracuse, October 13, from the effects of poison, self-administered, it is believed, with suicidal intent while despondent on account of ill health, aged 45.

James Porter Brallier, M.D. *Medico-Chirurgical College* of Philadelphia, 1909; a Fellow of the American Medical Association; and a well-known young surgeon of Alexandria, Pa.; was crushed under an overturned automobile, October 18, near Hollidaysburg and instantly killed, aged 31.

Daniel Michael Sheedy, M.D. New York University, New York City, 1888; a member of the surgical staff of St. Francis' Hospital, *Poughkeepsie, N. Y.*; died suddenly at his home in that city, October 31, from heart disease, aged 49.

Warren H. Taylor, M.D. Detroit College of Medicine, 1896; a member of the Michigan State Medical Society and coroner of Genesee County; died at his home in Flint, Mich., October 29, from cerebral hemorrhage, aged 41.

Stanley Michael Piotrowski, M.D. Chicago College of Medicine and Surgery, 1914; died at his home in Chicago, September 18, from diabetes, aged 27.

---

pany
then take
Novembe
the Uni
workr
venti
To
the c
Canne
Crile,
Hender
feller I.
been ma
by miner
tric shoc
by physici
to individua
poisoning or
Holiday
Heiser, Uni
suggests that
sympathy next
wish to remembe
requires several
Send prepaid parce
H. Revell, 158 Fifth
U. S. A. Committee,
sented to receive and fo
securely wrapped, mark
name of the sender.

Red Cross Work in Franc
tion of $25,000 to the Americ

Burr G. Carleton, M.D. New York Homeopathic Medical College, New York City, 1876; genito-urinary surgeon to the Metropolitan, Hahnemann and Flower hospitals, New York City; a specialist on diseases of the kidney; died at his home in New York City, October 29, from heart disease, aged 57.

Cyrus Cue Davis Shelburn, M.D. Hospital College of Medicine, Louisville, Ky., 1906; a member of the Kentucky State Medical Association; died at his home in Cunningham, Ky., October 25, from the effects of poison self-administered, it is believed, with suicidal intent, aged 40.

John Wesley Beckett, M.D. Howard University, Washington, D. C., 1905; a member of the Medical Society of the State of Pennsylvania; a colored practitioner and one of the city physicians of Pittsburgh; died in the West Penn Hospital in that city, October 20, aged 35.

John Joseph Cassidy, M.D. University of Toronto, Ont., 1869; for sixteen years editor of the *Canadian Journal of Medicine and Surgery* and formerly president of the Board of Health of Toronto; died at his home in that city, August 1, from heart disease, aged 71.

Samuel Butler Grimes, M.D. University of Maryland, Baltimore, 1897; of Roland Park, Md.; died at the home of his father in Baltimore, October 25, from the effects of a gunshot wound of the head, self-inflicted it is believed with suicidal intent, aged 39.

Crowell Clarinton Hall, M.D. Dartmouth Medical School, Hanover, N. H., 1876; a member of the Maine Medical Association and one of the most prominent and wealthy citizens of Piscataquis County; died at his home in Dover, Maine, October 19, aged 60.

Frank Merril Vebber, M.D. Eclectic Medical College of the City of New York, 1884; town health officer of Clayton, N. Y.; coroner of Jefferson County in 1885 and 1888; died in the Watertown, N. Y., City Hospital, October 20, from diabetes, aged 58.

Phillip E. Parker, M.D. Tulane University, New Orleans, 1885; a Fellow of the American Medical Association; of Bay City, Tex.; was accidentally shot by a companion while shooting October 15 and died in the Jones Hospital, October 16, aged 55.

Robert W. Earll, M.D. Rush Medical College, 1853; formerly superintendent of the Columbus, Wis., Hospital, and for many years a practitioner of Milwaukee; died at the home of his daughter in Denver, October 26, from pneumonia, aged 91.

Walter Samuel Baker, M.D. New York Homeopathic Medical College, New York City, 1863; for more than half a century a practitioner of Newark, N. J.; died at his home in that city, October 26, from cerebral hemorrhage, aged 73.

Levi Houghton Kimball, M.D. Boston University, 1877; formerly of Bath, Maine, and for two terms a member of the city council; died at his home in Roxbury, Boston, October 21, aged 61.

Thomas J. Boyson, M.D. Royal University of Copenhagen, Denmark, 1869; of Plymouth, Cal.; died in the German Hospital, San Francisco, October 2, from cerebral hemorrhage, aged 69.

John Franklin Clark, M.D. University of Alabama, Mobile, 1909; a Fellow of the American Medical Association; died at his home in Paint Rock, Ala., September 22, aged 34.

John Robinson Gamble, M.D. Bellevue Hospital Medical College, 1866; a retired practitioner of Knox County, Ohio; died at his home near Mount Vernon, July 19, aged 77.

David C. Harmison, M.D. College of Physicians and Surgeons, Keokuk, Ia., 1878; a veteran of the Civil War; died at his home in Havana, Ill., October 19, aged 69.

Charles G. Kuhlman, M.D. Rush Medical College, 1889; of San Francisco; a member of the Medical Society of the State of California; died in San Francisco, October 8.

John Fullerton Hicks, M.D. University of Michigan, Ann Arbor, 1865; died at his home in Menominee, Mich., October 17, from cerebral hemorrhage, aged 76.

J. Jackson Crider (license, Iowa, 1886) an itinerant practitioner; died at his home in Columbus Junction, Ia., October 12, from cerebral hemorrhage; aged 82.

John W. Jones, M.D. Eclectic Medical Institute, Cincinnati, 1868; of Milton, Wis.; died at his home in that place, October 21, aged 75.

Edwin A. Gaviller, M.D. McGill University, Montreal, 1873; died at his home in Hamilton, Ont., August 8, aged 74.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

ARTICLES REFUSED RECOGNITION

Reports of the Council on Pharmacy and Chemistry

For the benefit of the medical profession and the encouragement of honest manufacturers, the Council on Pharmacy and Chemistry, when first organized, decided to publish a book which should contain authoritative information about medicinal preparations found to merit the consideration of physicians. This book, New and Nonofficial Remedies (N. N. R.) is republished annually, so that each edition contains descriptions of all the proprietary and nonofficial remedies which, up to the date of issue, the Council has found worthy of recognition. During each year descriptions of additional preparations appear in The Journal, are later issued in supplements to N. N. R., and finally are incorporated in the next edition of the book.

In addition to N. N. R., with its descriptions of medicinal articles found "acceptable," the Council has authorized for publication from time to time reports dealing with proprietary articles or with certain phases of the proprietary medicine business. These reports have been issued annually in book form, those deemed of interest to the general medical practitioner being previously published in The Journal. Reports which were of direct interest only to a few have been published in the annual volume only.

While, in its Reports, the Council has published the reasons which led to the rejection of some of the articles investigated, by far the greater portion of the Council's investigations have not been published for two reasons. First, it was thought that many of the products found ineligible did not justify reports because they were of interest to few physicians; and, second, it was desirable that the manufacturers should be given an opportunity to modify or improve the preparations found ineligible and thus make them acceptable to inclusion in N. N. R.; therefore, publication of reports dealing with rejected articles was postponed so far as possible. The Council having been in existence for nearly ten years, manufacturers have had ample time to adapt themselves to new conditions, and one of the reasons for delayed publicity no longer holds good. So far as the other reason is concerned, inquiries which come to the Council and to The Journal indicate that physicians do, for various reasons, seek information in regard to many proprietary products regarding which no report has been published. The Council, therefore, has decided to make public, even when no detailed reports are prepared, a brief outline of the reasons which led to the rejection of articles. In case consideration of such products was requested by their manufacturer or their distributing agents, these abstracts are not published until they have been submitted to the interested parties. When the Council takes up the consideration of an article on its own initiative, the abstract of such consideration naturally is published without consideration of the manufacturer. Included with these abstracts also will be brief abstracts of Council reports which have been prepared only for publication in the annual reports. The Council has authorized the publication of the first instalment of abstracts, which appears below.

Agar-lac

Agar-lac, said to be the product of "Agar-lac, Inc.," is sold by E. Fougera and Company, New York. The following "formula" for Agar-lac is published:

"Agar-Agar with Lactic Ferments.............. Grs. 4½
Phenolphthalein .... Grs. ½"

Regarding the "lactic ferment," the identity of which is not declared by the manufacturer and for the viability of which no precautions appear to be taken, the Council's expert on lactic acid ferments reported that *Bacillus bulgaricus* was present in small numbers only and that there were at least two other bacteria present, one of which is a gas-former of the *Bacillus coli* type.

The Council found that the amount of agar-agar in Agar-lac and the identity of the "lactic ferment" are not declared; that the name "Agar-lac" is blown in the glass and that the method of its exploitation will lead laymen to use it to their detriment; that the claims that it "facilitates assimilation of proteids" and that it is of value as an aid to "gastro-intestinal digestion" give a false value to the mixture and that the claims emphasize the action of agar-agar when from the composition it is evident that the phenolphthalein action will predominate; that the name does not indicate its predominating constituent, phenolphthalein, and that the use of a ready-made combination of cathartic drugs, such as agar-agar and phenolphthalein with lactic acid ferments, is unscientific.

Aseptikons

Aseptikons are vaginal suppositories sold by the Chinosol Co. of New York. Each suppository is said to contain:

Ac. Salicicylici	2 grs.
Ac. Borici	10 grs.
Quin. purae (Alkal.)	1 gr.
Chinosol	2 grs.
But. Cacao	60 grs.

The following claims appear in advertisements:

> "These suppositories are indicated in cervicitis, leucorrhea, specific and non-specific vulvo-vaginitis and in all cases where complete vaginal antisepsis is desired."
>
> "*Non Toxic, Non Irritating, No Damage to Membranes. Yet a More Powerful Antiseptic than Bichloride.*"

The Council decided that the foregoing claims in the absence of evidence must be held exaggerated and likely to mislead, and also that the claim "Stronger than Bichloride" which appears on the box is misleading.

The position of the Council is that "In the case of pharmaceutical preparations or mixtures the trade name must be so framed as to indicate the most potent ingredients." The name Aseptikons does not give any indication of the ingredients of the product.

The Council holds that "The combination of two or more remedies in a mixture must be considered contrary to scientific medicine unless a distinct reason exists for such combination." No evidence has been submitted to establish the value of the combination in Aseptikons.

On the basis of the evidence submitted the Council voted that Aseptikons be refused recognition because unwarranted and misleading therapeutic claims are made because the name does not indicate its potent constituents, and because the combination of two or more remedies in a mixture is considered contrary to scientific medicine unless a distinct reason exists for such combination.

Bacillicide

Bacillicide, sold by the Prophytol Products Company, Richmond, Va., is an antiseptic solution of the Glyco-Thymoline type. Vague, indefinite and misleading statements are made in regard to its composition and method of preparation.

The Council voted that Bacillicide was unacceptable because only a non-quantitative and therefore meaningless formula was published; because vague and unsubstantiated statements were made as to its method of preparation (removal of irritating action of formaldehyde); because exaggerated claims as to its therapeutic action were made; because its name did not indicate the potent ingredients of the pharmaceutical mixture but suggested its use without consideration of the composition, and because the use of an indefinite complex preparation such as Bacillicide is represented to be, is contrary to the best interests of the public.

Iron Solution for Intravenous Therapy—Perkins and Ross

Iron Solution for Intravenous Therapy, Perkins and Ross, manufactured by Perkins and Ross, Colorado Springs, Colo., is said to be an aqueous solution containing soluble iron phosphate, sodium chloride and "calcium creosote." Its use by intravenous injection is recommended as a "chalybeate, emmenagogue and tonic" and in "all conditions in which iron is indicated." The advertising circular overemphasizes the use of intravenous medication and minimizes its drawbacks and dangers.

The composition of "calcium creosote" was not furnished and it was acknowledged that only a part of the "calcium creosote" enters into the solution. As the intravenous administration of a drug like iron, which must be continued for long periods, cannot be considered the method of choice, as the composition of the solution is such that changes may occur on standing, etc., which would make the preparation dangerous, and as the method of marketing the solution does not insure its sterility, further increasing the danger of its use, the product was rejected.

(To be continued)

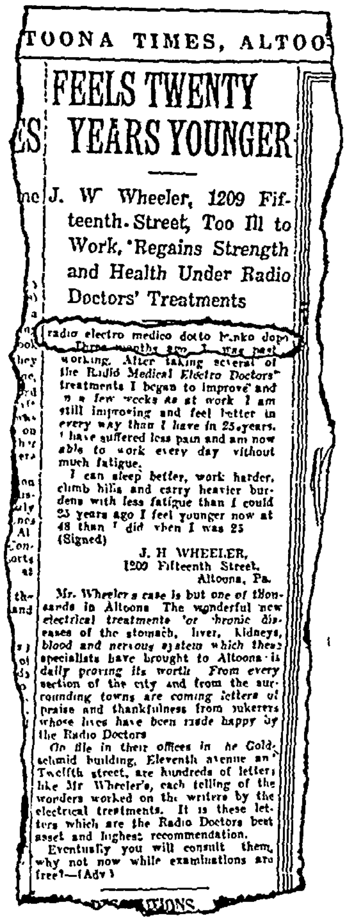
THE RADIO MEDICAL ELECTRO DOCTORS

A Printer Inadvertently Expresses an Opinion on These Doctors

In preparing manuscript for publication, it is not unusual to insert what are known as "catch lines" for the purpose of aiding the "make-up man" in preparing the matter according to the author's ideas. Such "catch lines," of course, are deleted by the proofreader before the material finally appears in its finished form. Occasionally, however, these lines are overlooked, and the reader is given a peep behind the scenes of the printing office.

Itinerant quacks have certain stock advertisements which are interspersed with testimonials—genuine or faked. The testimonials, being a fluctuating quantity, are usually sent separately from the main advertisement.

The Radio Medical Doctors is the name assumed by some quacks who have recently been operating in Altoona, Pa. In common with their kind, they publish advertisements in local newspapers. We reproduce in miniature one advertisement that appeared in the Altoona *Times* Oct. 1, 1914. It consists of the usual extravagant statements found in such advertisements, together with a testimonial from a Mr. Wheeler. The testimonial had evidently been sent to the printers at a different time from the body of the advertisement. That the type-setter might know just where this testimonial was to be used, he headed it with a "catch line." This "catch line" we have marked in the miniature reproduction, and that it may be more easily read, have reproduced slightly enlarged thus:



TOONA TIMES, ALTOO

FEELS TWENTY YEARS YOUNGER

J. W Wheeler, 1209 Fifteenth Street, Too Ill to Work, Regains Strength and Health Under Radio Doctors' Treatments

radio electro medico docto bunko dope

Three months ago I was past working. After taking several of the Radio Medical Electro Doctors' treatments I began to improve and in a few weeks was at work. I am still improving and feel better in every way than I have in 25 years. I have suffered less pain and am now able to work every day without much fatigue.

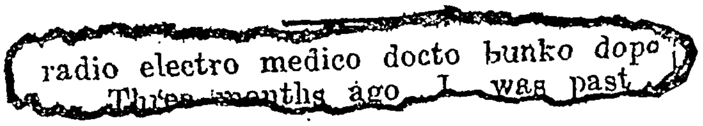
I can sleep better, work harder, climb hills and carry heavier burdens with less fatigue than I could 25 years ago I feel younger now at 48 than I did when I was 25 (Signed)

J. H WHEELER,
1209 Fifteenth Street,
Altoona, Pa.

Mr. Wheeler's case is but one of thousands in Altoona The wonderful new electrical treatments for chronic diseases of the stomach, liver, kidneys, blood and nervous system which these specialists have brought to Altoona is daily proving its worth From every section of the city and from the surrounding towns are coming letters of praise and thankfulness from sufferers whose lives have been made happy by the Radio Doctors

On file in their offices in the Goldschmid building, Eleventh avenue and Twelfth street, are hundreds of letters like Mr Wheeler's, each telling of the wonders worked on the writers by the electrical treatments. It is these letters which are the Radio Doctors best asset and highest recommendation.

Eventually you will consult them, why not now while examinations are free?—(Adv)



radio electro medico docto bunko dope
Three months ago I was past

The average newspaper man, whether he works in the composing room or on the editorial staff, is usually no fool. The printer who headed the Radio Medical Electro Doctors' testimonial as "bunco dope" was "wise." His classification cannot be improved on.

MAIGNEN ANTISEPTIC POWDER

Report of the Council on Pharmacy and Chemistry

The report which appears below was submitted by a referee and after adoption by the Council was sent to the manufacturer for comment, in accordance with the Council's regular procedure in such cases. The manufacturer's comments were transmitted to a second referee, who reported that after a careful consideration of the manufacturer's reply he saw no valid reason for a modification of the report. The referee also reported that a visit to the Maignen Institute further served to convince him of the viciousness of the treatment as given and that the records made by the persons in the employ of the institute were too inadequate to serve as clinical evidence. On the referee's recommendation, the report as originally adopted was reendorsed by the Council and authorized for publication. W. A. Puckner, Secretary.

Maignen Antiseptic Powder is marketed by the "Maignen Institute for the Study of Bacterial Diseases," Philadelphia. It is claimed to be a mixture of calcium hydroxid, sodium carbonate, aluminum sulphate and boric acid, but no statement as to the amount of the several constituents is furnished. Its action depends on the sodium hydroxid which is formed when the powder is treated with water, 1 Gm. of the powder as now submitted to the Council yielding 0.32 Gm. of sodium hydroxid (NaOH) and a specimen obtained a year ago yielding 0.28 Gm. Its promiscuous use is recommended both to physicians and to the public with claims which are extravagant, preposterous and even dangerous.

A pamphlet, clearly intended for the laity, entitled "What Is Catarrh?" gives direction for the "sterilization" of the nose, throat, stomach, lungs, eyes, gums, mouth and the genito-urinary tract. The following, taken from this pamphlet, illustrates the absurdity of the claims made for Maignen Antiseptic Powder:

> "STERILIZATION OF THE STOMACH
>
> "Take of the Maignen Antiseptic Powder half the quantity raised on a dime, scant.
>
> "Add to a tumbler of water, preferably warm, and stir.
>
> "Drink slowly.
>
> "This is what may happen:
>
> "1). Belching may be the first indication of the sterilization of the stomach.
>
> "2). The excess of acidity is corrected.
>
> "3). The fermentation is stopped.
>
> "4). The sterilization extends to the Intestinal Tract.
>
> "5). The bowels are regulated without purgation.
>
> "6). The whole metabolic process is improved.
>
> "When and how often to drink the antiseptic solution.
>
> "a). For Indigestion, whenever distressed, before or after meals.
>
> "b). For Constipation, half an hour before breakfast or last thing at night.
>
> "c). For Gastro-Intestinal troubles, such as Typhoid Fever, Dysentery and Cholera, which are the most serious forms of catarrhal inflammation, take half a tumbler or a whole tumbler of hot water with half the quantity of Powder raised on a dime every hour, and between times a glass of generous [sic] wine.
>
> "Remarks
>
> "The sterilization recommended here is a plain disinfecting process which does not interfere with medical treatment. It is, on the contrary, of great assistance to it.
>
> "It has been found very effective in breaking up the cigarette habit. It does away with the craving by removing the morbid irritation of the mucous membrane."

Eighty-eight disorders are listed in a pamphlet entitled "Antiseptic Therapeutics" all of which are reported as having been treated with success. The dangerous character of the Maignen "sterilization" propaganda is illustrated by a pamphlet "First Aid to Baby-Sick" and by the recommendation on the trade package:

> "To prevent Blood Poisoning, Lockjaw, Hydrophobia and Infectious Diseases."

The legend on the trade package and the advertising matter contained in it are likely to lead the public to place dependence on a weak sodium hydroxid solution as a means of preventing blood-poison, lockjaw, hydrophobia and infectious diseases. The pamphlet "First Aid to Baby-Sick" recommends its use in sore eyes, teething and sore mouth, sore throat, running ears, running nose, sore chest, summer complaint, skin troubles and infection after vaccination; if any trust is put in these claims, they are bound to lead to the sacrifice of many infants through neglect of proper treatment.

Patent No. 1,086,339 has been granted on this powder to P. J. A. Maignen of Philadelphia by the U. S. patent office on the following specification of claim made in the application:

> "1. A process for destroying microorganisms on living tissue, without injuring the latter . . . whereby the growth of such organisms is inhibited and their substance dissolved without deleterious effect upon contiguous healthy tissue."

With brazen assurance this grant has been twisted by the unscrupulous promoters into a government endorsement of the preparation. It, of course, means nothing of the sort, as, no doubt, in accordance with legal routine the patent was granted without any investigation by the patent office to determine the effectiveness of the powder for the purpose claimed.

In view of the dangerous, unwarranted and absurd claims made for Maignen Antiseptic Powder the referee recommends that it be refused recognition, and that the Council declare its agreement with views expressed in the article "Maignen Pulv." published in The Journal, Feb. 15, 1913, p. 537, particularly the following:

> "The germicidal powers of strong alkalies have long been known, but the inconvenience of their application to tissues and mucous membranes has prevented their use. That they will be of service when sufficiently diluted not to irritate the tissues is improbable, for the antiseptic power of such solution is slight and the disinfectant value practically nil."

Because the Maignen Institute has twisted the granting of U. S. patent No. 1,086,339 into a quasi-endorsement of the claims made for Maignen Antiseptic Powder it is recommended that a copy of this report be sent to the Commissioner of Patents as a protest against the present law, which authorizes the granting of patents on unproved and improbable medical claims.

Correspondence

Unauthorized Insertion of Advertisement

To the Editor:—I notice the regular Kenilworth Sanitarium advertisement displayed in the October number of *American Medicine*, and I would thank you to put this note in The Journal of the American Medical Association, in order that the medical profession may be informed that the insertion of said advertisement was entirely unauthorized.

Sanger Brown, M.D., Kenilworth, Ill.
Chief of Medical Staff, Kenilworth Sanitarium.

[Comment.—The foregoing may explain how it sometimes happens that clean, ethical advertisements appear in publications whose principal income is derived from nostrum and fake advertisements.—Ed.]

The Metchnikoff Theory

To the Editor:—The theory, so ably supported by Metchnikoff, which ascribes to the leukocytes the function of picking up and destroying bacteria which find their way into the blood or tissues (phagocytosis) is now generally accepted as having been demonstrated by observation and experimental evidence.

I have no desire to detract from the credit due to Metchnikoff in connection with this theory, but in justice to myself desire to call attention to the fact that this theory was suggested by me several years before the publication of Metchnikoff's first paper on the subject. In support of this statement, I quote from my book entitled "Bacteria," published in 1884 (William Wood & Co., New York), pp. 250 and 251:

> "If we add a small quantity of culture-fluid containing the bacteria of putrefaction to the blood of an animal, withdrawn from the circulation into a proper receptacle, and maintained in a culture-oven at blood-heat, we will find that these bacteria multiply abundantly, and evidence of putrefactive decomposition will soon be perceived. But, if we inject a like quantity of the culture-fluid with its contained bacteria into the circulation of a living animal, not only does no increase and no putrefactive change occur, but the bacteria introduced quickly disappear, and at the end of an hour or two the most careful microscopical examination will not reveal the presence of a single bacterium. This difference we ascribe to the vital properties of the fluid as contained in the vessels of a living animal; and it seems probable that the little masses of protoplasm known as white blood corpuscles are the essential histological elements of the fluid, so far as any manifestation of vitality is concerned.

"*The writer has elsewhere suggested that the disappearance of the bacteria from the circulation, in the experiment above referred to, may be effected by the white corpuscles,* which, it is well known, pick up, after the manner of amoebae, any particles, organic or inorganic, which come in their way. And it requires no great stretch of credulity to believe that they may, like an amoeba, digest and assimilate the protoplasm of the captured bacterium, thus putting an end to the possibility of its doing any harm.

"In the case of a pathogenic organism we may imagine that, when captured in this way, it may share a like fate if the captor is not paralyzed by some potent poison evolved by it, or overwhelmed by its superior vigor and rapid multiplication. In the latter event, the active career of our conservative white corpuscle would be quickly terminated, and its protoplasm would serve as food for the enemy. It is evident that in a contest of this kind the balance of power would depend on circumstances relating to the INHERITED vital characteristics of the invading parasite and of the invaded leukocyte."

It seems to me that the theory of phagocytosis is very clearly stated in the foregoing quotation, although the term "phagocyte" had not yet been suggested.

The book from which the quotation is made was published in the spring of 1884, but it was written in 1883 and the preface, written last, is dated Aug. 15, 1883. The statement that "the writer has elsewhere suggested that the disappearance of the bacteria from the circulation in the experiment above referred to may be effected by the white corpuscles" is supported by the following quotation from a paper read at the Cincinnati meeting of the American Association for the Advancement of Science, Aug. 18, 1881:

"It has occurred to me that possibly the white corpuscles may have the office of picking up and digesting bacterial organisms which by any means find their way into the blood. The propensity exhibited by the leukocytes for picking up inorganic granules is well known, and that they may be able not only to pick up but to assimilate, and so dispose of, bacteria which come in their way does not seem to me very improbable in view of the fact that amoebae, which they resemble so closely, feed on bacteria and similar organisms" (*Tr. A. A. A. S.* for 1881, p. 175).

The paper from which this quotation is made is entitled "A Contribution to the Study of the Bacterial Organisms Commonly Found on Exposed Mucous Surfaces and in the Alimentary Canal of Healthy Individuals. Illustrated by Photo-Micrographs. By George M. Sternberg, Surgeon U. S. Army, late 'Fellow by Courtesy' of the Johns Hopkins University. With Plates XI, XII and XIII."

The first record I can find of Metchnikoff's announcement of the theory of phagocytosis is in his paper in *Virchows Archiv,* 1884, xcvi, 177, "Ueber eine Sprosspilzkrankheit der Daphnien."

George M. Sternberg, M.D., Washington, D. C.

"Flying Clinics" in the Medical Treatment of Rural Schoolchildren.—Dr. A. E. Williams describes in the *Journal of State Medicine* for October some of the measures employed in the medical treatment of schoolchildren in Great Britain. In thinly populated rural districts facilities for remedying many defects found among the children are lacking. Although the children of the rural districts are, as a rule, healthier and stronger than those in more thickly populated districts, it became necessary to devise some special measures for treating defective vision, dental caries, etc. For this purpose, "flying clinics" were established. For the flying eye clinic, a portable apparatus was devised, consisting of a small tent of dark material for a dark room, an ophthalmic lamp and a case of trial lenses. For dental defects, both flying clinics, working from school to school throughout a county, and clinics at a fixed center to which all the children in the given county were sent, were employed. Dr. Williams says it is now proved that flying clinics are both practical and useful, the cost being not great. He believes that the time is not far distant when these clinics will be looked on as an essential feature in every scheme of medical inspection.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

THE PRICE OF RADIUM ACTIVATORS

To the Editor:—The treatment of disease by radium emanations is being urged on the medical profession by interested purveyors of apparatus for producing these emanations. There is a certain mystery with reference to radium which, combined with its high price, leads the physician readily to accept the prices charged for these activators. Thus, one of the most widely advertised activators is priced at $200 for an apparatus which will produce 2,500 Mache units per day in ½ liter of water. Another firm advertises a similar apparatus at a price of $165. Still another firm claims to produce an apparatus of equal capacity for $15.

Being interested in this subject, I wrote to several companies asking prices and particularly the amount of radium which is necessary to produce this quantity of emanation. To the first firm I wrote as follows:

"Please quote me the price of a — — — activator capable of furnishing 2,500 Mache units per day. Will you kindly indicate to me the approximate amount of radium that is necessary to produce this strength of radium emanation?"

With reference to the amount of radium necessary, the reply of this firm is somewhat evasive:

"In answer to your question as to the approximate amount of radium required to produce a desired strength of emanation, we beg to reply that this depends entirely upon which salt of radium you use, its concentration and how you use it. Its full emanation is available when a soluble salt, as bromide or a chloride is dissolved in water, but this is only temporary, as its strong affinity for other salts soon causes it to precipitate, even attacking the silica of the glass; the emanation is then greatly reduced—in instances we have known it to fall within 2.5 per cent. of its original amount. If an insoluble salt like the sulphate or the carbonate be used, you can generally obtain from 5 to 8 and sometimes even 10 per cent. of its available emanation. Unless you are thoroughly familiar with radium, we would not advise you to attempt constructing your own apparatus, because in the end you would undoubtedly lose a considerable proportion of your radium, and the result would be much more expensive than if you purchased an activator at the start."

Of course, it is well known that the different radium salts differ in their radium activity, but it would have been no great task for the firm to indicate the amount of some one salt or of radium element.

To the second company I wrote as follows:

"Do you furnish an activator for producing radium emanations? If so, please quote me the price of an apparatus capable of producing a solution containing 2,500 Mache units per day. Would you kindly tell me the approximate amount of radium necessary for the production of a water containing 2,500 Mache units per day?"

In reply to this query, I received the following letter:

"In answer to your inquiry in your letter of September 25, we are obliged to advise that we cannot supply an apparatus for the production of so small an amount of radium emanation as 2,500 Mache units per day. The amount of radium necessary for the production of a water containing 2,500 Mache units per day would be 0.01 mg. of radium element."

The third firm advertises an apparatus at the low price of $15, but says in its letter:

"The price of our No. — — — is $25. This we guarantee to generate 2,700 Mache units. This guaranty is based on a generating capacity of from 500 to 1,000 Mache units more than the rating. The reason for this is that the emanation is three times as soluble in air as it is in water, and in spite of careful handling, a certain amount of the emanation will be lost."

In view of these varying prices, it is pertinent to ask, What is the reason for this enormous excess charged beyond the value of the radium contained? One one-hundredth mg. of radium element is worth approximately $1.25. If this is the value of the radium contained in the apparatus, is it possible that bottles and containers are worth from $164 to $199? A similar disparity between charges and value appears in the price for rental of these pieces of apparatus. Thus, the apparatus costing $200 rents for $80 for a period of six months. Is it possible that the credit of physicians is so poor that they must pay such enormous prices? Even the cheap apparatus costing $15 is rented for $22.50 for a period of six months.

I would be much interested in any comments which you may see fit to make on this situation.

J. H. S.

Answer.—In reply to the first question, regarding the amount of radium necessary to produce 2,500 Mache units of emanation daily, it may be said that the total amount of emanation from 1 microgram (that is one millionth of a gram) of radium (element) will correspond to 2,700 Mache units. The total amount of emanation produced by a given amount of radium is that which is obtained from material that has been kept in a sealed vessel for six weeks or more. If all emanation is removed from a sample of radium at the start, then at the end of twenty-four hours only about one-sixth of the maximum amount of emanation will have accumulated. If all of the emanation produced were effective, then it would require 6 micrograms of radium to yield 2,700

Mache units in twenty-four hours. At $120 a milligram this amount of radium would be worth 72 cents.

The answer to the second question is in fair agreement with the foregoing statement. It is there stated that 0.01 mg. (10 micrograms) of radium element will produce 2,500 Mache units per day. Doubtless the writer of that statement made allowance for some loss, as would be inevitable in the actual therapeutic use of radium. Actually 10 micrograms of radium would produce emanation corresponding to 2,500 Mache units in about fourteen hours; or in twenty-four hours with a 58 per cent. efficiency.

When it comes to the practical utilization of the emanation in the preparation of drinking water the statements in reply to the first question are in the main correct. A chemist familiar with the manipulation of radio-active substance could by use of a soluble radium salt get each day practically the whole of the emanation produced and bring it into solution in the water intended for drinking. But such work requires technical skill in manipulation; in the first place to avoid loss of the emanation and secondly to prevent ultimate loss of the valuable radium or its spontaneous conversion into an insoluble form as pointed out in the answer to the first question.

The practicing physician, or the patient using the active water, is not in general skilled in the handling of radium or its emanation, and so requires an apparatus with which he "pushes the button, and the machine does the rest." In the "activators" on the market the radium is practically always in the form of an insoluble salt, probably sulphate or carbonate. In this form only a small percentage of the emanation is given off. Suppose, however, that only 5 per cent. is available, as this is the lowest figure given in the answer to the first question: then to produce 2,500 Mache units daily with 5 per cent. efficiency would require twenty times as much radium as if all the emanation were available, namely, 120 micrograms (0.12 mg.), worth $14.40.

In regard to the third question, it would seem that it would be possible to supply an activator which would give 2,500 Mache units daily at the price stated, $25, and still leave a reasonable margin of profit.

ARTICLES ON INTRASPINAL INJECTIONS OF SALVARSAN IN PARESIS AND LOCOMOTOR ATAXIA

To the Editor:—Please inform me if any extensive work is being carried on with intraspinal injections of salvarsan in cases of paresis and locomotor ataxia. Who is doing this work? Can a detailed statement or a summary of it be obtained?

A. E. Conter, M.D., Chattahoochee, Fla.

Answer.—The following is a list of references to the work on this subject:

Johnson, G. T.; Breaks, L. Z., and Knoefel, A. F.: The Treatment of Tabetic Optic Atrophy with Intraspinal Injections of Salvarsanized Serum, The Journal, Sept. 5, 1914, p. 866.

Riggs, C. E., and Hammes, E. H.: Results of One Hundred Injections of Salvarsanized Serum, The Journal, Oct. 10, 1914, p. 1277.

Spencer, G. W.: Intrathecal Injection of Salvarsanized Serum, *Lancet*, London, May 30, 1914; Abst., The Journal, July 4, 1914, p. 65.

Brown, P. K., and Cummins, W. T.: Swift-Ellis Treatment of Cerebrospinal Syphilis, *California State Jour. Med.*, July, 1914.

Gradwohl, R. B. H.: Treatment of Syphilis of Nervous System by Means of Salvarsanized Serum, *Lancet-Clinic*, July 11 and 18, 1914.

Mapother, E., and Beaton, T: Swift-Ellis Treatment of General Paralysis, *Lancet*, London, April 18, 1914; abstr., The Journal, May 16, 1914, p. 1585.

McCaskey, G. W.: Autoserosalvarsan Treatment of Syphilis of the Central Nervous System, The Journal. May 30, 1914, p. 1709.

Swift, H. F., and Ellis, A. W. M.: The Treatment of Syphilitic Affections of the Central Nervous System, with Special Reference to the Use of Intraspinous Injections, *Arch. Int. Med.*, September, 1913, p. 331.

Hough, W. H.: Intraspinous Injection of Salvarsanized Serum in Treatment of Syphilis of Nervous System, Including Tabes and Paresis, The Journal, Jan. 17, 1914, p. 183.

McCaskey, G. W.: Autoserosalvarsan Treatment of Syphilis of Central Nervous System, The Journal, Jan. 17, 1914, p. 187.

A New Treatment for Cerebrospinal Syphilis, Including Tabes and Paresis, editorial, The Journal, Jan. 17, 1914, p. 209.

Myerson, A.: Intraspinous Injection of Salvarsanized Serum, correspondence, The Journal, Jan. 31, 1914, p. 396.

Cutting, J. A., and Mack, C. W.: Intraspinal Injections of Salvarsanized Serum in Paresis, The Journal, March 21, 1914, p. 903.

Bernstein, H. S.: A Suggestion in the Treatment of Syphilis, The Journal, March 21, 1914, p. 914.

Ayers, J. B.: Salvarsanized Serum (Swift-Ellis Treatment) in Syphilitic Diseases of Central Nervous System, *Boston Med. and Surg. Jour.*, March 19, 1914.

Jefferson, C. W.: [illegible] Salvarsanized Blood Serum in [illegible] Nervous System, *Kentucky Med.* [illegible]

Marinesco, G [illegible] Treatment, *Bull. de l'Acad. de* [illegible] 1914.

Pilsbury, L. B.: Paresis Patients Treated with Intraspinal Injections of Salvarsanized Serum, The Journal, Oct. 10, 1914, p. 1274.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

California: Los Angeles, December 8. Sec., Dr. Charles B. Pinkham, 727 Butler Bldg., San Francisco.

Delaware: Dover and Wilmington, December 8-10. Sec., Dr. H. W. Briggs, 1026 Jackson St., Wilmington.

Florida: Palatka, December 2-3. Sec., Dr. E. W. Warren, 102 Front St., Palatka.

Kentucky: Louisville, December 16-18. Sec., Dr. A. T. McCormack, Bowling Green.

Maryland: Baltimore, December 8. Sec., Dr. J. McP. Scott, 137 W. Washington St., Hagerstown. Homeopathic, Baltimore, December 15-16. Sec., Dr. O. N. Duvall, 1817 N. Fulton, Baltimore.

Ohio: Columbus, December 8-10. Sec., Dr. George H. Matson.

Pennsylvania: Philadelphia, December 1-3. Sec., Dr. N. C. Schaeffer, Harrisburg.

Virginia: Richmond, December 15-18. Sec., Dr. J. N. Barney, Fredericksburg.

Arkansas May Report

Dr. W. S. Stewart, secretary of the State Medical Board of the Arkansas Medical Society, reports the written examination held at Little Rock, May 12-13, 1914. The total number of subjects examined in was 12; total number of questions asked, 120; percentage required to pass, 75. The total number of candidates examined was 61, of whom 51 passed and 10 failed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
University of Arkansas	(1902) 84.2; (1908) 80; (1913) 77.3; (1914)	75, 75.5, 76.2, 77.1, 78, 78.3, 78.4, 78.7, 78.8, 79.2, 79.7, 80, 81.2, 81.3, 81.8, 83, 83, 83.3, 84, 85, 85.6, 86, 89.5, 90.3.
University of Colorado	(1895)	82.7
University of Louisville	(1895) 81.4; (1894)	84
Tulane University of Louisiana	(1910)	82.2
University of Oklahoma	(1914)	84.7
Meharry Medical College	(1904) 70.7*; (1909) 70.3*; (1914)	78.6, 83
University of Nashville	(1905)	83
University of Tennessee	(1913) 80; 81.6; (1914)	75, 75, 78.4, 79.4, 80, 82, 82.5, 82.7, 83, 84, 84.7, 85.8.

* Credit allowed for years of practice.

FAILED

College	Year Grad.	Per Cent.
Louisville and Hosp. Med. College	(1908)	59.5
University of Louisville	(1909) 66.2; (1911)	63
University Medical College, Kansas City	(1911)	64.3
Meharry Medical College	(1909) 63.8; (1912) 55.7; (1913) 46.3; (1914)	68.8, 70.3
University of Tennessee	(1914)	63.7

The following questions were asked:

ANATOMY

1. Name the bones of the upper extremity. 2. Describe the scapula. 3. Give the boundaries and contents of the axilla. 4. Give the origin, relations and branches of the femoral artery. 5. Describe the duodenum, giving nerve and blood supply. 6. Name the structures composing the larynx, with nerve and blood supply. 7. Give the origin, course and termination of thoracic duct. 8. Give the origin, course and distribution of the musculospiral nerve. 9. Describe the fourth ventricle. 10. Name the structures divided in an amputation at knee-joint.

PHYSIOLOGY

1. Give the origin and significance of urea. 2. What general conditions or factors influence blood-pressure and blood-velocity? 3. Describe and discuss hunger and thirst. 4. Name the veins which form the portal vein, and give its function. 5. Give the function of the lymphatic system. 6. Give the function and location of the gall-bladder and its connection with other organs. 7. Define osmosis, endosmosis and exosmosis. 8. Name and describe the salivary glands. 9. What digestive disturbances follow the removal of the pancreas? 10. How do the products of digestion find their way into the blood?

CHEMISTRY

1. Name seven elements, giving symbol, valence and atomic weight. 2. How is oxygen prepared for commercial use? 3. Define organic, inorganic and physiologic chemistry. 4. Give chemical name and formula of sugar of lead; Epsom salts; tartar emetic. 5. What are the chemical changes if you mix calomel and lime-water? 6. Give Heller's test for albumin and the bismuth test for sugar in urine. 7. Give test for blood in urine. 8. What are proteins and from what are they derived? 9. What is lunar caustic? Dose? Antidote? 10. What is salol and when administered what chemical changes take place?

HYGIENE

1. Define hygiene. 2. Describe the physiologic action of alcohol. 3. Describe the preparation of patient, surgeon, instrument and surroundings for a surgical operation. 4. What is antitetanic serum? Give its use. 5. Give an effective method for controlling an epidemic of diphtheria. 6. What are the most important factors in preserving health, and how best observed and applied? 7. Name some of the conditions that predispose to or cause disease. 8. State the value of disinfection

and isolation in contagious diseases and the disinfectant employed. 9. How does hookworm enter the human system, and what measures should be taken to prevent it? 10. What would be your instruction to prevent the spread of typhoid fever?

MATERIA MEDICA

1. Define an expectorant. (*b*) Into what classes are expectorants divided? (*c*) Give an example of a nauseating expectorant. 2. Where does the belladonna plant grow? (*b*) What is its physiologic action? (*c*) What is its active principle? 3. What is a vascular contractor? (*b*) Give an example. 4. How much morphin is there in 1 ounce of powdered opium U. S. P.? (*b*) How much opium is there in 1 ounce of tincture of opium? 5. Define a solvent and an excipient. Give an example of each. 6. Give dosage of the following drugs: strychnin sulphate; hydrargyri chloridum mite; liquor poatssi arsenitis; hydrargyri iodid rubrum; ammonium chlorid; ferri sulphate; acetanilid; sodium salicylate; F. E. nucis vomica; atropin sulphate; ipecacuanha; magnesia sulphate. 7. Criticize the following prescriptions:

(*a*) F. E. Nucis Vomica oz. I.
Aquae q. s. ad oz. IV.
M. Sig. Tablespoonful t. i. d.—p. c.
(*b*) Tinct. Digitalis dr. ss.
Spts. Aetheris Nitrosi dr. III.
Liq. Ammon. Acetat. oz. ss.
Aquae q. s. ad oz. VI.
M. S. One ounce every three (3) hours.
(*c*) Tr. Ferric Chlorid dr. ss.
Tr. Iodine dr. ss.
Tannic acid grs. xx.
Glycerine q. s. ad oz. IV.
M. S. Swab throat.

8. Give properties and physiologic action of potassium permanganate. 9. Give physiologic action of potassium bromid. 10. How does acetanilid reduce an elevated temperature?

THERAPEUTICS

1. Name two conditions in which you would use thymol and state how you would use it. 2. What is especially indicated in treating scrofulosis with glandular enlargement? 3. In collapse of pneumonia, name the most efficient remedy and mode of administration. 4. Name six routes by which we may introduce remedies into the circulation. 5. How would you combat opium poisoning? 6. Give therapeutic uses of salicylic acid. 7. How may we administer ipecac in large doses without causing nausea? 8. Name three official preparations of mercury and give therapeutic uses of each. 9. Describe the technic in the administration of diphtheritic antitoxin. How does it combat the disease? 10. What class of patients is it that does not bear chloral hydrate well?

SURGERY

1. Describe ligation of the radial artery in the upper third. 2. Give symptoms, diagnosis and treatment of tuberculosis of the kidney. 3. What are the symptoms of air embolism? Give treatment. In what regions are surgical operations most liable to be followed by this condition? 4. Name three forms of bowel obstruction. Give symptoms that are common to each. Outline a surgical operation that may be required in any one form selected. 5. Give differential diagnosis of luxation of the hip and fracture of the surgical neck of the femur. Give methods of management of each. 6. Describe in detail an amputation of a finger at the metacarpophalangeal joint. 7. Define hernia. Describe oblique inguinal hernia; give symptoms of strangulation and treatment. How measure and fit a truss in inguinal hernia? 8. What is shock? Give symptoms. Give the treatment and the precautions that may be taken for its prevention. 9. Define necrosis and give the causes and surgical treatment. 10. Name varieties of fistula in ano and give treatment. Describe an operation for removal of hemorrhoids. Give symptoms and treatment of ischiorectal abscess.

OBSTETRICS

1. Describe how you would conduct a normal labor. Give in detail asepsis in conection therewith. Also what attention would you give the child if Neisser infection is suspected with the mother? 2. Define abortion and miscarriage. State how you would manage a case of incomplete abortion. Also state some morbid conditions of mother that is a frequent cause of either occurring. 3. What are the more frequent morbid conditions of the breasts which occur in puerperium? Give prophylaxis and treatment for same. 4. Give the mechanism of normal labor in R. O. A. position. 5. State how you would apply forceps in R. O. P. position, and what emergencies and complications should you be prepared for at such a delivery? 6. Give the varieties of version, and give in detail method of doing same in any variety you may select. 7. What is accidental hemorrhage occurring in gestation? Give causes, varieties and treatment. 8. How would you manage a case of retained placenta associated with profuse hemorrhage? 9. Describe some of the more frequent etiologic factors in puerperal infection. 10. What is asphyxia neonatorum? Give causes and treatment. Describe Sylvester's method of artificial respiration.

PATHOLOGY

1. Explain the development of pus cells. 2. What general pathologic lesions characterize chronic alcoholism? 3. Describe the pathogenesis of gall-stones and the physical and chemical characteristics of one variety. 4. What is cretinism and with what is it associated? 5. Describe in detail the pathogenesis of pellagra. 6. What pathologic changes may cicatrices undergo? 7. What valve is most commonly involved in endocarditis? (*b*) What are the structural types of endocarditis and the common micro-organisms that produce these lesions? 8. What conditions may cause dropsical effusions in the abdomen and in the lower extremity? 9. What laboratory methods may be of service in the diagnosis of cancer of the stomach? 10. Name the varieties of urinary renal casts, describe the characteristics of each and state what forms of renal disease they are a part.

GYNECOLOGY

[illegible] What is pruritus vulvae? Give causes and treatment. 2. Name [illegible]erent forms of vaginitis, giving etiologic factor in each, and [illegible] where the gonococcus is the causative agent. 3. Define ure-[illegible]icle. Give symptoms and treatment. 4. Name causes and [illegible]nt for dysuria. 5. In the early stage of cancer of the [illegible] objective symptoms would you find to make you suspect same? How would you confirm the diagnosis, and what would be your treatment? 6. What anatomic changes will take place in order that a retroversion may occur? Give operative treatment for retroversion. 7. Give differential diagnostic points of salpingitis on the right side and appendicitis. 8. What are the more frequent causes of acute pelvic cellulitis? Give subjective and objective symptoms and your treatment. 9. What conditions would lead you to do a uterine curettement? Describe in detail your method of performing same. 10. Differentiate ascites, hydramnios and unilocular ovarian cyst.

THEORY AND PRACTICE OF MEDICINE

1. Give the physical signs, symptoms and treatment of pulmonary tuberculosis in the early stage of the disease. 2. Give differential diagnosis of variola and varicella. 3. Differentiate between chronic interstitial and chronic parenchymatous nephritis. Give prognosis of each. 4. Describe the physical signs of each stage of pneumonia and give treatment of each in robust subject. 5. Give symptoms and treatment of cerebrospinal meningitis. 6. Give etiology, symptoms, prognosis and treatment of rachitis. 7. Give normal location of apex beat of the heart and give diagnostic symptoms of its various displacements. 8. What are the more common causes of ascites and from what other abnormal conditions must it be differentiated? 9. Give differential diagnosis of measles and scarlet fever, and treatment of the latter. 10. What are the symptoms, prognosis and treatment of hysteria?

Book Notices

The Healthy Marriage. A Medical and Psychological Guide to Wives. By G. T. Wrench, M.D., B.S. Cloth. Price, $1.50 net. Pp. 300. New York: Paul B. Hoeber, 1914.

Sexual Ethics: A Study of Borderland Questions. By Robert Michels, Professor of Political Economy at the University of Basle. Cloth. Price, $1.50 net. Pp. 296. New York: Charles Scribner's Sons, 1914.

For Girls and the Mothers of Girls. A Book for the Home and School Concerning the Beginnings of Life. By Mary G. Hood, M.D., with an Introduction by Sarah Louise Arnold. Cloth. Price, $1 net. Pp. 157, with illustrations. Indianapolis: Bobbs-Merrill Company, 1914.

Ten Sex Talks to Boys (10 Years and Older). By Irving David Steinhardt, M.D., Instructor in Clinical Surgery, Cornell University Medical School. Cloth. Price, $1 net. Pp. 187. Philadelphia: J. B. Lippincott Company, 1914.

Ten Sex Talks to Girls (Fourteen Years and Older). By Irving David Steinhardt, M.D., Instructor in Clinical Surgery, Cornell University Medical School. Cloth. Price, $1 net. Pp. 193, with 6 illustrations. Philadelphia: J. B. Lippincott Company, 1914.

Women and Morality. By a Mother. Men and Morals. By a Father. The Sexes Again. By C. Gasquoine Hartley. Introduction by Wallace Rice. Cloth. Price, $1 net. Pp. 102. Chicago: The Laurentian Publishers, 1914.

Teaching Sex Hygiene in the Schools. By E. B. Lowry, M.D. Cloth. Price, 50 cents. Pp. 94. Chicago: Forbes & Co., 1914.

It is to be expected that the widespread discussion of sex questions and sex instruction that has been prevalent during the past two or three years would produce a considerable amount of literature. The books listed above represent a small portion of the recent output and are typical publications on this subject. The entire question of sex relations is so complicated by personal, religious and conventional prejudices and so modified by experience, temperament and point of view as to make dogmatic assertions on this subject particularly dangerous. What the outcome of the present agitation will be, as far as modification of our ideas as to sex relations, education of children and social conventions, it is impossible to say. Perhaps the wisest plan to follow is simply to chronicle the appearance of different books on this subject, leaving it to each individual to select the literature which comes nearest to meeting his needs.

"The Healthy Marriage" appears to be an earnest effort to supply the lay reader with a moderate, sane, practical book which will furnish the information needed without sensationalism or exaggeration. Besides advice on marriage, the book contains much valuable information on exercise, personal habits and the securing of sanitary surroundings. It can be safely recommended by the physician to the patient desiring reliable information.

Michels' book is a frankly philosophic discussion of the problems involved in sexual relations. The point of view is essentially Continental, and probably many of the author's assertions and conclusions would be unacceptable to the average American reader.—The book is one for the student rather than for the public.

Dr. Mary G. Hood's book "For Girls and the Mothers of Girls" is an elementary presentation for girls of the school age. There have been many efforts in this direction, each of which has had its merits and weaknesses. Each writer on this subject has her own conception of the manner in which it should be presented, and by the same token probably each writer finds readers who are particularly attracted by the manner of presentation. Perhaps in the future we may be able to standardize our ideas of instruction on these subjects. To-day the number of books in this field is the best evidence of diversity of opinion as to the best method of presentation.

Dr. I. D. Steinhardt has made two contributions to this field, one for girls and one for boys. The books originated in talks to audiences of Jewish boys and girls in New York. They are in the form of ten talks or lectures, each followed by ten review questions covering the subject matter.

The little volume on "Women and Morality" contains three essays, the first two being anonymous and the third by Mrs. Walter Gallichian. The three essays originally appeared in the *English Review* for July, August and September, 1913. The discussion, which is essentially from an English point of view, is interesting on account of the brilliancy of method rather than for any real contribution to the problems involved.

Dr. Lowry's "Teaching Sex Hygiene in the Public Schools" does not adhere closely to the title, but touches on many related questions such as "White Slavery," "The True Relations between Mothers and Daughters," "The Dangers to Boyhood," "Blindness of Parents," etc. Several of the chapters appeared first as separate articles in different medical journals. The book impresses the reader as being hastily and rather carelessly put together.

Practical Sanitation. A Handbook for Health Officers and Practitioners of Medicine. By Fletcher Gardner, M.D., Captain Medical Corps, Indiana National Guard, and James Persons Simonds, B.A., M.D., Professor of Preventive Medicine and Bacteriology, Medical Department, University of Texas. Cloth. Price, $4. Pp. 403, with 37 illustrations. St. Louis: C. V. Mosby Company, 1914.

The authors have endeavored to provide, within the confines of a single, moderate-priced volume, a plain, non-technical presentation of the duties of the local health officer and to furnish information for the health officer to meet any emergency which may arise. It is not intended for the specialist or the sanitarian who has access to a large library. The growing tendency of smaller towns and counties to provide for health supervision of some sort makes the need for such a work. The book is divided into three general parts, on epidemiology, general sanitation and laboratory methods. In the first part, after a general discussion of the nature of infection, chapters are given to the management of epidemics, isolation and quarantine, the construction and maintenance of isolation hospitals and camps, and disinfection. The different groups of diseases coming under the jurisdiction of the health officer are then discussed. Under the typhoid group, for instance, are considered typhoid, paratyphoid, mountain fever, amebic dysentery, bacillary dysentery and Asiatic cholera. The other groups discussed are the exanthemas group, the diphtheria group, the plague group, the yellow fever group, the septic group, the tuberculosis group, the typhus group, the meningitis group, the venereal group, the ringworm group, the conjunctivitis group and the animal parasites group. This method of grouping contagious diseases in classes of diseases requiring similar treatment and management has obvious advantages. Under each disease, the cause, pathology, method of transmission, diagnosis, quarantine and disinfection methods and methods for community prevention are considered. The section on general sanitation discusses the organization of sanitary forces, methods of keeping records, methods of inspecting schools, factories and institutions, methods for carrying on special campaigns against rats, flies, mosquitoes, etc., and methods for the disposal of sewage and garbage and for the inspection of water and milk. The third part of the book is devoted to a description of practical laboratory methods. The introduction is by Dr. J. N. Hurty, Health Commissioner of Indiana.

Miscellany

Foot-and-Mouth Disease

Foot-and-mouth disease (see editorial on same subject, this issue, page 1776) is also known as epizootic aphtha, aphthous fever, infectious aphtha, aphthae epizooticae; *Maul-und-Klauenseuche, Aphthenseuche, Mäulfaule,* by the Germans; as fièvre aphtheuse, cocotte, by the French; and as *afta epizootica, febbre aftosa,* by the Italians. The contagious nature of foot-and-mouth disease was recognized before 1764, but until the growth of bacteriology it was associated with spoiled feed, bad air and various climatic influences. Various organisms, including bacteria or protozoa, have been suggested as the cause of the disease. In 1897 Löffler and Frosch showed that the contagious material passed through porcelain filters, and therefore put it in the class of filterable viruses. Recently Siefel has connected with the disease certain cocci, which he found in the blood of infected animals, in the vesicles, in the plasma, and in the heart muscle, and his findings have been duplicated by others. The disease infected eastern Europe, and in various wars was spread to western and central Europe. It has occurred at periodic intervals, when it usually has spread over all the countries, and after two or four years subsided. Great Britain, Germany, France, the Netherlands, Austro-Hungary, Russia, all have in turn suffered from it. The loss from this disease in England in 1883 was estimated at $5,000,000. In an epidemic in Germany in 1890, about 500,000 cattle, 250,000 sheep and 150,000 swine were infected with it.

The disease reached Canada through an importation of cattle from England to Montreal in 1870; from this point it spread to the New England states, New York and New Jersey, when this large epidemic was effectively checked. In 1902 an outbreak threatened great danger, but following the destruction of all infected and exposed herds, together with proper quarantine measures, the disease was limited to four of the New England states. At various times there have been small outbreaks following the importation of infected animals. The last large outbreak to occur in the United States was in 1908. At this time the disease was discovered in some Pennsylvania cattle. Investigations by the government showed that cow-pox vaccine virus, imported from a foreign country, was contaminated with foot-and-mouth disease. This vaccine was employed for the production of vaccine in calves which then became infected with foot-and-mouth disease. Another concern purchased some of the contaminated vaccine and infected its own calves. The calves of the second firm were then sold in the open market and started the epidemic; those of the first firm having served their purpose for the production of vaccine had been killed. The government immediately had all the vaccine recalled, and using the usual vigorous measures, was able to check and eradicate the epidemic. This particular instance cost the federal government $300,000. There are no records which show transmission to man of foot-and-mouth disease by means of small-pox vaccine, and it is extremely doubtful if such transmission is possible by the ordinary method of vaccination.

In the epidemic of 1908 Michigan, Pennsylvania, New York and Maryland were affected. "Since that time," says Eichhorn, of the Bureau of Animal Industry, "this country has been free from the disease and with the quarantine prescribed by law for imported animals and the present requirements of testing all importations of vaccine lymph for possible contaminations of foot-and-mouth disease, there appears to be little danger of the introduction of the disease into this country" (Reference Handbook of the Medical Sciences, Iv, 504).

In the present epidemic of foot-and-mouth disease, which concerns practically the entire Mississippi Valley, the chief interest is centered in the outbreak in the large Chicago Stock Yards. Up to November 9—quarantine of the stock yards having been instituted November 7—912 head of cattle valued at $52,000 and 160 hogs valued at $2,000 were slaughtered and buried in quicklime in the stock yards. The work of disinfection consisted of a liberal use of creosote, lime and phenol (carbolic acid). Ten states are under federal quarantine and two others are about to be quarantined. It was found unnecessary to slaughter any of the prize stock in the exhibit at Chicago, all of them being quarantined and under treatment; none of them were affected with the disease in a severe form. The history of the epidemic as given by Secretary Houston is as follows: The disease appeared at Niles, Mich., about October 12, and went to the Chicago Stock Yards in a shipment of hogs. From the stock yards it was carried broadcast for over two weeks before steps were taken to limit it. The present epidemic covers five times as much territory as any other former epidemic. Railroads are disinfecting all stock cars. The embargo over the Chicago Stock Yards will cover a period of one week.

In many of the European countries the spread of the disease is checked by allowing all the animals in a single herd to be infected, holding them under quarantine and waiting for them all to die or to recover. More recently it has proved of advantage to destroy all animals of the infected herd and those that have been exposed, at the same time instituting a rigid quarantine and disinfecting the buildings in which the diseased animals have been kept.

The disease is rarely fatal in man, but has been known to be fatal to children. It is not carried by meats but may be transmitted by milk, butter or cheese. Milk that is not pasteurized and cheese that is not made from pasteurized milk may be carriers of the disease.

First Aid to Those Overcome by Mine Gases, Electric Shock, Etc.

The Bureau of Mines, in publishing the report of the Committee on Resuscitation from Mine Gases (Technical Paper 77), recommends the following procedure in giving first aid to those in need of artificial respiration:

"In case of gassing, remove victim at once from gaseous atmosphere. Carry him quickly to fresh air and immediately give manual artificial respiration. Do not stop to loosen clothing. Every moment of delay is serious.

"In case of electric shock, break electric current instantly. Free the patient from the current with a single quick motion, using any dry non-conductor, such as clothing, rope or board, to move patient or wire. Beware of using any metal or moist material. Meantime have every effort made to shut off current.

"Attend instantly to the victim's breathing. If the victim is not breathing, he should be given manual artificial respiration at once.

"If the patient is breathing slowly and regularly, do not give artificial respiration, but let Nature restore breathing unaided.

"In gas cases, give oxygen. If the patient has been gassed, give him pure oxygen, with manual artificial respiration.

"The oxygen may be given through a breathing bag from a cylinder having a reducing valve, with connecting tubes and face mask, and with an inspiratory and expiratory valve, of which the latter communicates directly with the atmosphere.

"No mechanical artificial resuscitating device should be used unless one operated by hand that has no suction effect on the lungs.

"Use the Schäfer or prone-pressure method of artificial respiration. Begin at once. A moment's delay is serious.

"Continue the artificial respiration. If necessary, continue two hours or longer without interruption until natural breathing is restored. If natural breathing stops after being restored, use artificial respiration again.

"Do not give the patient any liquid by mouth until he is fully conscious.

"Give him fresh air, but keep his body warm.

"Send for the nearest doctor as soon as accident is discovered."

A limited number of copies of the report may be obtained free from the Bureau of Mines, Washington, D. C.

Medicolegal

Practicing Medicine Without a License Punishable Under Statute

(State vs. Nelson (La.), 65 So. R. 893)

The Supreme Court of Louisiana says that the bill of information filed against the defendant charged him with practicing medicine without a license. He filed a motion to quash the information on the ground that no provision is contained in the statute to punish those who practice without a license. The motion was granted and the Supreme Court affirmed the judgment of the lower court. A rehearing was obtained, and on the rehearing the judgment was reversed.

In its first decision the Supreme Court held that the defendant's contention that Act 49 of 1894 is unconstitutional because its title is not broad enough to cover a prosecution for practicing medicine without a license, was not well founded, as the title of the act recites that it is an act "to regulate the practice of medicine" and "to provide punishment by fine or imprisonment or both." But the court further held that an act, amending an act which has already been repealed, is absolutely without force as the amendment has no foundation on which to rest; and, as Section 14 of Act 49 of 1894 had been repealed by Act 13 of 1898, the attempt to amend Section 14 of Act 49 of 1894 by the passing of Act 244 of 1908 was abortive, and did not have the effect of giving any force to Section 14 of Act 49 of 1894. On the rehearing, however, the court holds that the objection that a statute, purporting to amend and reenact a section of an existing statute, is inoperative because the section in question has already been amended and reenacted by, and merged in, another statute, will not be sustained where the title of the amendatory statute not only declares the purpose to amend, but goes farther and specifically and affirmatively declares the object to be accomplished by the amendment. Act 244 of 1908 is not, therefore, obnoxious to the objection that its object is not declared in its title, or to the objection that it is an ineffectual attempt to amend a nonexistent provision of law, since its title gives it a status as independent legislation.

The title of Act 16 of 1912, at which, also, the defendant's motion to quash was directed, merely declares its object to be to "amend" Sections 5, 11 and 14 of Act 49 of 1894, entitled "An Act to regulate the practice of medicine," etc. The declaration is sufficient as to Sections 5 and 11, but insufficient as to Section 14, which had previously been amended and reenacted by Act 13 of 1896, and superseded by Act 244 of 1908. Another objection, in so far as Section 14 is concerned, is that the title of Act 16 of 1912 refers to criminal prosecutions only, whereas the body of the act provides also a civil proceeding by injunction.

Liability for Patient Under Own Physician Getting Poison in Hospital—Evidence

(Broz vs. Omaha Maternity & General Hospital Association (Neb.), 148 N. W. R. 575)

The Supreme Court of Nebraska affirms a judgment for $7,000 damages against the defendant hospital association for the death of a patient from poison. The patient, who suffered intermittent mental infirmities, was under the care of his own physician. In the absence of his physician, wife, relatives and friends, he found and took some mercuric chlorid tablets. The court says that the pleadings, evidence and circumstances justified a finding that the patient was admitted to the hospital under an implied obligation that he should receive such reasonable care and attention for his safety as his mental and physical condition required. The physician employed by him did not relieve the hospital of responsibility for negligence on its part, if any. The patient was under the personal observation of his physician only a small portion of the time. In the latter's absence and drug emergencies he was under the care of the nurses and the intern who were employees of the hospital. Within the scope of their employment their employer was legally responsible for their negligence to a patient. The patient's physician did not manage or control the hospital, and he was not liable for the negligence of hospital nurses and interns, if he had no connection with any negligent act.

At night, during the absence of the patient's physician, it was clearly the duty of the hospital intern, who was a physician, and the nurses in charge, to give such treatment and attention as the emergency demanded, when known. The defendant was prepared for such an exigency. One of the purposes of a hospital in assuming control of a patient, for private gain, is to furnish promptly modern equipment, facilities and treatment. To avail himself of these advantages the patient left his home and intrusted himself to the care of the defendant. The duties which such a hospital owes to a patient are commensurate with the responsibilities assumed. The approved rule is that a patient is generally admitted to a hospital, conducted for private gain, under an implied obligation that he shall receive such reasonable care and attention for his safety as his mental and physical condition, if known, may require.

It was said that the physician employed by the patient instructed the defendant to allow him the freedom of his room and the halls, that employees of the defendant did so, and that it was not chargeable with negligence for complying with instructions. The directions of the physician should be considered with the duty of the hospital to give the patient such reasonable care and attention for his safety as his mental and physical condition required. The defendant was not instructed to allow the patient, who had been suffering from a fitful mental disorder, access to a hospital sinkroom, where poison, in the form of medicine tablets, was kept. Whether there was negligence in allowing the patient access to such a place in the night, while unattended, was a question for the jury.

Where a hospital patient takes poison at night in the absence of his physician and friends, while he is under the exclusive care of nurses and interns, harsh and technical rules of evidence should not be enforced to exclude proper testimony tending to throw some light on material facts which, on account of the pecuniary interests and the reputation of the hospital, there might be a temptation to conceal.

In considering the reasonableness of the amount of damages awarded, it is held that a mere fitful or temporary mental disorder will not be presumed to continue.

What Constitute Communications to Physicians and Waivers of Privilege

(Ausdenmoore et al vs. Holzback (Ohio), 106 N. E. R. 41)

The Supreme Court of Ohio holds that there was no error in sustaining the objection of plaintiff Holzback to certain physicians testifying for the defendant as to a diagnosis they had made of the plaintiff's physical condition. Section 11494 of the General Code of Ohio provides: "The following persons shall not testify in certain respects: . . . Or a physician, concerning a communication made to him by his patient in that relation, or his advice to his patient." The court holds that a communication by the patient to the physician may be, not only by word of mouth, but also by exhibiting the body or any part thereof to the physician for his opinion, examination, or diagnosis, and that that sort of communication is quite as clearly within the statute as a communication by word of mouth. But the same section further provides that the physician may testify by express consent of the patient, and if the patient voluntarily testifies the physician may be compelled to testify on the same subject. This qualifying clause the court holds to mean that there cannot be a waiver except in two ways: First, by an express consent of the patient, or by the patient taking the stand and voluntarily testifying as to the things and matters communicated to his physician, the latter being held to be in effect an express waiver as to that physician. There was neither form of waiver in this case.

Society Proceedings

COMING MEETINGS

American Association of Anatomists, St. Louis, Dec. 28-30.
American Physiological Society, St. Louis, Dec. 27-30.
Amer. Public Health Association, Jacksonville, Fla., Nov. 30-Dec. 5.
Medical Society of Hawaii, Honolulu, Nov. 28-30.
Society of American Bacteriologists, Philadelphia, Dec. 29-31.
Southern Surgical and Gynecological Assn., Asheville, N. C., Dec. 15-17.
Western Surgical Association, Denver, Dec. 18-19.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION

Fortieth Annual Meeting, held at Cincinnati, Oct. 27-29, 1914

The President, Dr. D'Orsay Hecht, Chicago, in the Chair

Factors Which Determine the Advisability of Prostatectomy

Dr. William F. Braasch, Rochester, Minn.: With stone in the bladder it is usually advisable to remove the stone and drain the bladder for a time prior to prostatectomy. Stone in the bladder may cause temporary enlargement of the prostate. Pyelonephritis is a frequent complication of bladder drainage and a strong resistance should be established before attempting operation. The renal condition is better estimated prior to operation by clinical evidence than by laboratory tests. Cystoscopic examination, while valuable in certain conditions, may be the cause of harm if used as a routine procedure. Urethroscopic examination is occasionally of greater value than cystoscopic examination. It is particularly valuable with intra-urethral hypertrophy and with carcinoma.

DISCUSSION

Dr. William N. Wishard, Indianapolis: Twenty-four years ago I emphasized the importance of preliminary drainage in cases of prostatic obstruction where bladder infection existed and where kidney function was impaired.

Dr. French Cary, Chicago: Cystoscopic examination is of assistance in determining hypertrophy in different portions of the prostate. All cases should be given a functional test before operation and if the test is low, drainage should be instituted.

Dr. Charles E. Barnett, Fort Wayne, Ind.: In cases of malignant prostate, if the gland is very large and must be taken out, it is wrong to cystoscope the patient and traumatize the tissues, thus infecting the patient still more.

Dr. Bransford Lewis, St. Louis: Many cases of prostatic obstruction are not improved by operation. They are cases of acute, almost complete, obstruction from contracture which can be relieved by palliative measures.

Dr. Gustav Kolischer, Chicago: There are cases in which prostatectomy is indicated, although retention of urine may not be very acute, and there is no hyperdilatation of the bladder, and no infection. One condition which frequently is overlooked is an infiltrating cystitis that extends to the bladder wall from the mucosa and perivesical tissue. If we drain the bladder we are not going to influence the infiltration which is an infectious, inflammatory infiltration of the two coats of the bladder wall. There is only one way of relieving this condition, and that is to make an extensive incision, stripping this infiltrated tissue just as we deal with an infiltrating phlegmon in any other part of the body.

Hemolysis, Following Transfusion of Blood

Dr. Bertram B. Bernheim, Baltimore: In eight hundred reported transfusions there were fifteen instances of macroscopic hemolysis. In these fifteen cases there were eleven recoveries and four deaths. No hemolytic tests were made in three of the instances where death occurred. In the fourth case tests were made and it was known that the donor's cells were slightly agglutinated by the patient's serum, but since agglutination is an entirely different process from hemolysis, and since no other donor was available, it was considered fairly safe to use this donor, and a fatality occurred. Tests were made in eleven of the fifteen recoveries, and in nine instances hemolysis was prognosticated. The dangers of transfusion are immediate and delayed. The immediate is acute dilatation of the heart consequent on an inflow of blood of such force and rate that the recipient's heart is overwhelmed. The delayed danger is that of hemolysis, which can be prognosticated in practically every instance by careful tests prior to transfusion. In emergencies no thought should be given to hemolysis or anything else. Far better is it to transfuse immediately and save a patient from imminent death, running the slight risk of a late hemolysis, than to temporize with tests which require at least two hours for their proper performance. Where, however, there is time, and in the majority of instances such is the case, failure to have the tests made is an inexcusable blunder.

Radium in Treatment of Cancer of Uterus

Dr. J. Louis Ransohoff, Cincinnati: Radium is of undoubted value in cancer of the uterus to control hemorrhage, discharge and pain, and in causing the local disappearance of the disease. If possible, radium should be used in all cases of inoperable cancer of the uterus when the patient is not in the extreme stage of emaciation and cachexia.

Renal Infections from Bacteriologic Point of View

Dr. Irvin S. Koll, Chicago: The accepted three routes of infection are the lymphogenous, hematogenous and urogenous. Knowledge of the lymph channels draining from the intestinal tract into the kidney accounts for the frequency of infections of the kidney associated with acute and chronic gastro-intestinal disturbances. Infections through the ureter may be either extra- or intra-ureteral. Of particular importance is the pyelitis associated with pregnancy, the frequency of which is estimated as high as 20 per cent. Of late the hematogenous route seems to have been neglected in the consideration of the carriage of bacteria to the kidney. The circulatory system is a carrier of bacteria of as great importance as the lymph stream.

DISCUSSION

Dr. Hugh Cabot, Boston: The milder grades of infection of the kidney, commonly miscalled pyelitis, are extraordinarily more common in females than in males, even among children. This should not be regarded as accidental, and yet this has never been explained satisfactorily.

Dr. Edward C. Rosenow, Chicago: Primary pyelitis is rare. It is a pyelonephritis or nephritis infecting the pelvis of the kidney secondarily. The results I have had from the intravenous injections of streptococci make me feel strongly that given a case of acute pyelitis or pyelonephritis, no matter what the organism is primarily, it is a hematogenous infection that primarily infects the capillaries and secondarily infects the pelvis of the kidney.

Dr. Emil Ries, Chicago: Cases of so-called pyelitis said to have been cured were really not cases of pyelitis at all, but cases of pyelonephritis. Cases of so-called pyelitis of pregnancy came under my observation rather frequently in years gone by. They were treated on the conservative plan, and the vast majority of the patients got well.

Dr. Bransford Lewis, St. Louis: Lavage, using a fluid that has certain medicaments incorporated in it that have germicidal properties, will cure infections of the renal pelvis.

Gastric and Duodenal Ulcer

Dr. C. W. Dowden, West Baden, Ind.: Of 425 cases of gastric and duodenal ulcer, 170, or 40 per cent., bore a definite relation to some infection, and I conclude that this is the chief etiologic factor. Ulcers pass through a stage which is distinctly medical, and if diagnosed at this time are amenable to treatment. Surgical ulcers are those that have involved more than one coat of the gastric mucosa. Medical treatment at this time is worse than useless because the patient mistakes temporary relief for cure. An active ulcer in its early stage is best treated by absolute rest to the stomach, controlling painful peristalsis by antispasmodics, and by rectal feeding until the acute stage has passed. All foci of infection, no matter where located, should be removed.

DISCUSSION

Dr. Charles D. Aaron, Detroit: In the treatment of gastric ulcer, when it is complicated by vagotonia, the treatment of both conditions will give a better result than if we treat only the ulcer. We have all had cases of healed ulcer of the pylorus, with contraction or stenosis of the pylorus, dilatation of the stomach, visible peristalsis when the stomach was endeavoring to empty itself. We operate and what do we find? Not an ulcer but obstruction of the pylorus. A gastro-enterostomy is done and the patient recovers. Why in such cases do we not have chronic ulcer of the stomach?

Dr. Charles A. L. Reed, Cincinnati: Little regard has been paid to one of the most important etiologic factors, namely, chronic intestinal stasis. Too little attention is being given to the conditions within the stomach proper, to the nerve conditions back of the stomach action, and to the various distinctly local causes as they apply directly to the pylorus or to the duodenum. In the majority of cases the difficulty lies in favor of normal physiologic drainage of the duodenum and stomach, thus inducing infection which in turn induces ulceration. I have demonstrated this in a considerable number of cases. I have latterly tried to establish drainage in the lower segment of the intestinal tract, and with what results? The ulcer disappears.

Dr. C. W. Dowden: I am fully in accord with everything Dr. Reed said as to the important rôle intestinal stasis plays in the production of gastric and duodenal ulcer.

Colon Stasis

Dr. Joseph R. Eastman, Indianapolis: Treatment directed at the relief of chronic colitis will affect also the attendant ptosis and stasis and likewise the associated plastic peritonitis. Properly performed short-circuiting operations by the improved drainage which they provide relieve chronic colitis and indirectly affect favorably the other factors of stasis — ptosis and peritonitis. The feces are to a considerable extent made up of epithelial debris, intestinal secretions and dead and living bacteria, and these things mixed with food residue under the influence of contractions of the cecum rise in the ascending colon. But this contraction is not constant. The empty cecum is in repose; it does not contract. It is only awakened when the small intestine empties into the cecum its liquid contents. If contractions are not produced in this way, the feces have no tendency to be evacuated. The colon becomes lazy and atonic and obstipation is increased by antiperistalsis. It is for this reason that ileosigmoidostomy may be said to be conceived falsely. By this operation the liquid contents of the small intestine are not permitted to enter the cecum to bring about contraction. It is for this reason that Lane and others have been obliged to reoperate after ileosigmoidostomy and deal with an enormous fecal accumulation in the cecum and ascending colon. Typhlo-sigmoidostomy or typhlo-proctostomy are not open to the above criticisms, for in these operations the fluid contents of the small intestine are permitted to enter the cecum. In a case of simple constipation concerning only the left colon, ileosigmoidostomy may be of some benefit, but it is debatable whether such a condition is not better treated by non-surgical means. Bergmann first anastomosed the cecum to the sigmoid for volvulus of the ascending colon and the operation in cases of stasis is not indicated unless membranes or adhesions so fetter the colon as to make such an exclusion necessary because of incompetency or obstruction. If the colon is obstructed at the hepatic or splenic angles alone, then colocolostomy, as practiced by Payr, which excludes these flexures alone is of obvious use. Sigmoidoproctostomy for the exclusion of redundant sigmoid may often be employed with advantage to supplement the anastomosis of the caput coli to the rectum or the redundant sigmoid may be treated by the Troyanoff-Winiwarter anastomosis between the loops of the sigmoid or eventually the redundant colon may be resected. At any rate, after typhlo-proctostomy, coils of redundant sigmoid cannot with safety be left above the stoma. Montprofit's operation of dividing the terminal ileum and anastomosing both ends end-to-side with the sigmoid represents no improvement over simple typhlo-proctostomy. Here an attempt is made to drain the excluded cecum in defiance of the ileocecal valve through the short stump of the ileum, whereas this can be accomplished more simply and more completely by a large stoma in the floor of the cecum.

DISCUSSION

DR. JOSEPH RANSOHOFF, Cincinnati: Colon stasis does exist, but in a large number of individuals it produces no deleterious results whatever. In a very small number of cases colon stasis is followed by pathologic conditions. It has been said that idiopathic epilepsy may be brought on by colon stasis. It is a tremendously far cry from colon stasis to epilepsy. Idiopathic epilepsy is a condition which begins exceedingly early in life in the form of *petit mal*. I cannot believe that there is any possible connection between colon stasis and epilepsy.

DR. WILLIAM SEAMAN BAINBRIDGE, New York City: Lane emphasizes that nineteen cases out of twenty of intestinal stasis ought never to be operated, and yet men are saying that Lane performs colectomy, ileocolostomy, etc., on this class of patients. He does not.

DR. LOUIS J. HIRSCHMAN, Detroit: Postural treatment, special localized exercise, etc., will cure many cases of intestinal stasis. Give these patients Russian oil for months; it cures many of these patients. When they do not respond to these methods of treatment, operate.

DR. J. RAWSON PENNINGTON, Chicago: Colon stasis is a symptom, not a disease. The treatment for colon stasis is to remove the obstruction and then the stasis disappears. It does not make much difference what operation you do.

Use of Abderhalden Reaction with Normal and Pathologic Serums

DR. ELLISON L. ROSS and DR. H. DOUGLAS SINGER, Kankakee, Ill.: Our results, briefly, are as follows: 1. Paretic serum: With 2 washings 10 serums all gave positive results; with 3 washings 6 were all positive; with 5 washings 8 of 11 were positive; with 10 washings 1 of 3 was positive; with 11, 2 of 8; with 13, 14 and 15 washings none of 20 were positive. 2. Normal serum: With 2 washings 8 were all positive; with 3 washings 1 of 4 was positive; with 5, 8, 10, 11, 13, 14 and 15 washings a total of 34 serums all gave negative results. It was also demonstrated that the water used for the washing of substrates contained material which underwent lysis when mixed with blood serum. Hence, in order to determine whether there is any specific difference between the ferments present in general paresis and the normal state, the water used for the fifth and eighth washings was concentrated and used as a substrate. In spite of the failure of normal serum to digest brain substrate which had been washed 5 times or more, normal serum caused lysis of the material in this wash-water fully as markedly as did that from cases of general paralysis. From these facts it is evident that no interpretation of the results of Abderhalden tests with tissue substrates is justifiable unless the same (not merely similarly prepared) substrate has been proven to give negative results with a series of normal serums.

Modern Syphilis Therapy and the Central Nervous System from a Biologic Point of View

DR. CARL D. CAMP, Ann Arbor, Mich.: The treatment of tabes and paresis is probably the most important part of the treatment of syphilis of the nervous system. These diseases, while due to syphilis, have other determining factors. Intravenous injections of salvarsan have an effect in some cases. Intradural injections of salvarsan have greater effect on the spinal fluid findings but are distinctly dangerous. The Swift-Ellis treatment seems to vary in effectiveness with different observers; the more conservative do not find any greater improvement than with intravenous injections. The rationalé of this treatment is not very clear. The use of mercury by injections is probably as effective as any method of treatment and has less possibility of harm. Cases of tabes dorsalis frequently become stationary under mercurial treatment, the spinal fluid findings either showing improvement or else no change.

(To be continued)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

November, VIII, No. 5, pp. 321-381

1 Weights and Measurements of Infants and Children in Private Practice Compared with Institution Children and Schoolchildren. R. G. Freeman, New York.
2 *Hereditary Syphilis as Social Problem. P. C. Jeans and E. M. Butler, St. Louis.
3 Splenohepatomegaly Gaucher. Report of Three Cases. M. S. Reuben, New York.
4 Subacute Atrophy of Liver. E. C. Dickson, San Francisco.
5 *Tuberculous Lesions in Infants and Young Children, Based on Post-Mortem Examinations. M. Wollstein and F. H. Bartlett, New York.
6 Recurrent Meningitis, Due to Lead, in Child of Five Years. H. M. Thomas and K. D. Blackfan, Baltimore.

2. Hereditary Syphilis.—Jeans and Butler emphasize that as a social problem, hereditary syphilis assumes relatively large proportions, one patient often representing a number of individuals needing treatment. Parents are frequently indifferent and fail to continue treatment. They also frequently fail to see the importance of having Wassermann tests made on the other children of the family, who may seem perfectly well, but who may have syphilis. In the case of such parental indifference the authors suggest that such tests or treatment should be enforced.

Hereditary syphilis is more frequent in illegitimate than legitimate children. The mortality is higher in illegitimate syphilitic infants than legitimate syphilitic infants. Hereditary syphilis in St. Louis is from two to three times as frequent in the colored as in the white race. The frequency of hereditary syphilis is greater among the infants in our clinic than among the older children. The waste in potential life by miscarriages and deaths in syphilitic families is twice as great as in non-syphilitic children.

Thirty-three per cent. of the syphilitic children over 1 year examined by Jeans and Butler had permanent disabling damage. Eighteen per cent. of the syphilitic children over 1 year had long-continued temporary disabling damage. There is about five times as much feeble-mindedness in syphilitic families as in non-syphilitic families. The mortality for artificially fed syphilitic infants is five times as high as for breast-fed syphilitic infants, not including deaths due to intestinal disturbances.

5. Tuberculosis.—An analysis of 178 cases of tuberculosis occurring in children less than 5 years of age (75 per cent. under 2 years) was made by Wollstein and Bartlett. In five instances the tuberculous lesions were found to be limited to the bronchial lymph-nodes, only one node being involved in each of three cases, and two and three nodes in the other two cases, respectively. These children were between 17 and 27 months old. The lesion was an active one in every case. There were two children in whom the tuberculous lesions were limited to one lung and the adjacent bronchial lymph-nodes. One of these was a 4-months-old girl, the other a boy of 3 years. One child, 20 months old, had but one other tuberculous focus besides that in the bronchial lymph-nodes. In this case several fingers were the seat of a dactylitis, apparently tuberculous. As examples of pulmonary tuberculosis with beginning generalization through the blood-stream, was an 18-months-old child in which there was tuberculosis of the lungs, bronchial lymph-nodes and spleen, and another in which tubercles were found in the liver, spleen and pia mater, in addition to the lungs. The presence of recent tuberculous ulcers in the intestines in a boy 18 months old with an older infection in the lungs and bronchial glands suggested infection of the intestine through swallowing of tubercle-bacilli-laden sputum rather than blood generalization. By far the greater number of cases in this series fall into the group of primary pulmonary infection with markedly generalized tuberculosis by way of the blood. There were 134 cases of this kind, the lesions in the lungs and bronchial lymph-nodes being older than those in any other organ.

The lungs were free from tuberculosis in only 14 of the 178 cases. Calcareous degeneration was found in the lungs only five times. Pulmonary cavitation was present in forty-three children. One child presented cheesy tubercles in one mesenteric lymph-node, without any other tuberculous focus in the body. In one infant, 9 months old, the mesenteric and cervical nodes were equally large and cheesy, while one deep cervical node contained a calcareous area; one tuberculous ulcer was found in the jejunum. In two cases the cervical lymph-nodes showed as old a tuberculous focus as that found in the mesenteric nodes and intestines, while the liver and spleen and lungs contained but few young, miliary tubercles. Thirteen other cases presented the oldest lesion in the mesenteric lymph-nodes, whence more or less completely generalized infection had occurred. One child of 2 years, besides cheesy tubercles in several mesenteric glands, had miliary tubercles in the liver, peritoneum and pia mater. The involvement of the pia mater before that of the lungs and spleen is noteworthy. Six of the thirteen cases in which the mesenteric glands contained the oldest lesion were accompanied by tuberculous peritonitis. With one exception, a child of 7 months, all the cases of peritonitis occurred in children 21 months to 4 years of age.

There were only 14 cases in which the lungs were not involved. In the entire series of 178 cases there were only 9 in which the bronchial lymph-nodes contained no evidence of tuberculosis. In three the lungs were also free. In the remaining six there were tuberculous lesions in the lungs, but the primary focus was in the gastro-intestinal tract. The mesenteric lymph-nodes, on the other hand, were the seat of a tuberculous lesion in 113 of the 178 cases. In only 17 of these 178 cases were the mesenteric gland lesions the most advanced in the body, and in 4 of the 17 the intestines were not involved. Tuberculous meningitis occurred in 69, or 38 per cent., of these children. The distribution of the lesions in these cases shows that the younger infants tend to have a larger number of viscera involved in the tuberculous process, while in the older children meningitis may follow a limited infection. The younger infants have a more generalized tuberculosis and the older children have a more localized infection.

The most generalized cases had tubercles in the skin, myocardium, peritoneum, mesenteric glands, intestines, kidneys, liver, spleen, bronchial glands, lungs and pia mater. This occurred in two infants, 3 and 5 months of age. Of these sixty-nine cases of meningitis, three were of intestinal origin: The largest number of cases were of inhalation origin, as shown by the large percentage of cases in which the pulmonary lesions were the most advanced in the body. The absence of tuberculous lesions from the lungs in fourteen cases and the presence of tuberculous lesions in the bronchial lymph-nodes in seven of these seems to show that it is possible for the tubercle bacillus to pass through the lungs without localizing there.

American Journal of Orthopedic Surgery, Philadelphia

July, XII, No. 1, pp. 1-200

7 *Scoliosis. J. Calve, Berck, France.
8 Criticism of Paradoxic, Rotation of Physiologic Treatment of Scoliosis. A. M. Forbes, Montreal.
9 Mechanics of Plaster Corset in Lateral Curvature of Spine. E. G. Abbott, Portland, Me.
10 Relation of Bony Anomalies of Lumbar and Sacral Spine to Causes and Treatment of Scoliosis. Z. B. Adams, Boston.
11 *Bifurcation of Transverse Process of Fifth Lumbar Vertebra. M. S. Henderson, Rochester, Minn.
12 Treatment of Scoliosis by Abbott Method. H. L. Prince, Rochester, N. Y.
13 Frame for Standardizing Photographic Records of Scoliosis. C. H. Bucholz and R. B. Osgood, Boston.
14 So-Called "Sciatic Scoliosis." C. H. Bucholz, Boston.
15 Abbott Treatment of Rigid Scoliosis with Report of Sixty Cases. S. Kleinberg, New York.

7. **Scoliosis.**—With a child whose bony tissue is abnormally malleable, if the equilibrium of the forces of the spinal column is, from any cause, disrupted, Calve believes that the ensuing scoliotic deformation is perhaps readily explained. The rupture of the equilibrium is manifested by a curvature of the vertebral column. Because of the softness of the bony tissue, this curvature causes a deformation of the bodies of the vertebra, and this deformation makes the curvature permanent. The weight of the patient increases the curvature and rotation is started. The lateral deviation vertebra causes the bending of the rib, and this bending increases the rotation.

11. **Transverse Process of Fifth Lumbar Vertebra.**—Within the last two years, seventeen cases with bifurcation of the transverse process of the fifth lumbar vertebra have been recorded in the Mayo clinic. In this series there were three males, aged from 18 to 35, and fourteen females, aged from 9 to 45. Only three gave any symptoms which could be definitely attributed to the condition present. The remaining fourteen cases were discovered accidently in radiographing for other conditions such as lesions of the kidney and ureter, tuberculosis of the spine, congenital dislocation of the hip, etc. In four cases, the condition occurred on both side, seven on the right and six on the left. One case only was operated on; relief was but temporary.

American Journal of Public Health, Boston

October, IV, No. 10, pp. 819-963

16 Stream Pollution and Present Status of Controlling Legislation in California. C. G. Hyde, San Francisco.
17 Stream Sanitation in Illinois. P. Hansen, Springfield.
18 Stream Pollution in Indiana. J. A. Craven, Denver.
19 Prevention of River Pollution in Kansas. C. A. Haskins, Kansas City, Kan.
20 Stream Pollution in Louisiana. J. H. O'Neill, Denver.
21 Stream Sanitation in Maine. H. D. Evans, Denver.
22 State Control over Water Supply and Drainage Conditions in Maryland. R. B. Morse, Baltimore.
23 Laws Relating to Prevention of River Pollution in Massachusetts. X. H. Goodnough, Boston.
24 Sewage Disposal and Stream Pollution in Minnesota. F. Bass, Minneapolis.
25 Present Status of Waterways Sanitation in Montana. W. M. Cobleigh, Helena, Mont.
26 Stream Pollution and Sewage Treatment in Ohio. W. H. Dittoe, Columbus.
27 Conditions in Virginia with Respect to Stream Pollution. R. G. Messer, Richmond, Va.
28 *Pulmonary Anthracosis—Community Disease. O. Klotz, Pittsburgh.
29 Potassium Tellurite as an Indicator of Microbial Life. W. E. King and L. Davis, Detroit.
30 Is Pellagra Due to an Intestinal Parasite? B. W. Page, Lumberton, N. C.

28. **Pulmonary Anthracosis.**—Pulmonary anthracosis (not in coal miners) according to Klotz is distinctly an urban disease, and is proportionate to the smoke content of the air. The soot is inspired and lodges in the pulmonary alveoli, from which it carried by phagocytes into the lung tissue to become lodged in some portion of the pulmonary lymphatic system. Although small quantities of carbon deposit in the lung may remain without harm, yet the quantity accumulating in the dweller of the larger cities has an accompanying greater or less fibrosis, impairing the elasticity as well as altering the functional capacity of the organ. The distribution of carbon is fairly uniform in the parenchyma of the different lobes, but there is a considerable variation in the distribution of the pleural deposit. The interlobar diaphragmatic pleural surfaces show the least pigment. Moreover, less pigment is found in the grooves produced by the ribs of abnormal bands. Carbon tends to accumulate at the nodal points of junction of the lymphatic channels. The cellular migration of carbon may lead to unusual accumulations in certain areas, particularly well demonstrated in the deposit about chronic tuberculous lesions. Carbon deposits by inducing fibrosis tend to encapsulate chronic tuberculous foci. Pulmonary anthracosis by itself does not appear to stimulate the production of pleural adhesions. The actual amount of carbon present in the lungs of different individuals varies considerably and is dependent, in part at least, on the age, occupation, residence and condition of the lungs (emphysema, collapse, tuberculosis).

American Journal of Tropical Diseases and Preventive Medicine, New Orleans

October, II, No. 4, pp. 223-294

31 *Propagation of Amebic Dysentery in Animals. A. W. Sellards and W. A. Baetjer, Baltimore.
32 Spirochete and Fusiform Bacilli in Various Lesions in Philippines. W. P. Chamberlain, New York.

33 Occurrence of Endamoeba Mortinatalium as Human Parasite. A. J. Smith and F. D. Weidman, Philadelphia.
34 *Bubonic Plague. Study of Typical Case. H. W. Wade and H. L. Staring, New Orleans.
35 Tuberculosis in Tropical Countries and Necessity for Greater Effort to Prevent It. I. W. Brewer, Taughannock Falls, N. Y.
36 Tropical Infectious Stomatitis; "Mal De Boca." N. Barlow, Cuyamel, Honduras.

31. **Propagation of Amebic Dysentery in Animals.**—The inoculation of infective material from virulent and also from distinctly avirulent cases of amebic dysentery directly into the cecum of kittens has given practically 100 per cent. of infections as compared with the usual result of about 50 per cent. of positive infections when virulent material is fed or injected per rectum. Injections by intracecal methods has been of service in: (1) The continuous propagation of a strain of dysentery. (2) The determination of the etiology of some obscure diarrheas. (3) It also offers certain advantages in diagnosis and in the study of the morphology and biology of the entameba.

Continuous propagation of one strain of dysentery through eleven passages, with a definite increase in virulence and with retention of the typical morphology, has been obtained. Especial attention was given to the following points: (1) Avoidance, as far as possible, of the accompanying bacteria by selection of mucus and blood practically free from fecal matter. (2) Inoculation of ameba obtained during the first day or two of symptoms. (3) Avoidance of diluting agents. (4) Avoidance of degenerated ameba by sacrificing animals, if necessary, and obtaining material from the lesions in the mucosa.

Sellards and Baetjer state that degenerative changes described by Hartmann and by Darling do occur in infected animals, especially in spontaneous stools and in autopsy material, but by sacrificing the animals they were able to demonstrate, in addition to these degenerated forms, an abundance of typical virulent ameba in the lesions in the mucosa. A careful consideration of the possibilities for the loss of a strain of ameba by accident during subpassage in animals leads them to feel definitely that the view, accepted at present, that the subpassage of amebic infection is self-limited, is definitely erroneous.

The clinical course of the disease in animals is strikingly similar to that of human infections: (1) The following features occur both in man and animals: (a) Acute fatal infections; (b) chronic infections with relapses and liver abscess; (c) development of the carrier state. (2) Certain features have not been reproduced in kittens; (a) intestinal amebiasis with extensive lesions without dysentery; (b) rare complications, such as brain and splenic abscess. (3) One important feature, bacterial septicemia, is common in animals, but has not been rigidly established in man. (4) The pathology in man and animals is similar in its fundamental characteristics, but differs in the exact distribution of the lesions. Some obscure diarrheas were investigated by Sellards and Baetjer which were characterized by continuous watery discharges without periods of intermission and with the presence of a few atypical ameba in the stools. From a morphologic standpoint, no etiologic importance could be attached to these ameba. Animal inoculations proved definitely, however, that these organisms were responsible for the symptoms.

34. **Bubonic Plague.**—Given a case in which there is a sudden onset with marked prostration, severe headache, vomiting, high temperature and early delirium, in which there is found a focus of lymphatic enlargement and tenderness, Wade and Staring urge that the possibility of *B. pestis* infection should be considered. The diagnosis of a case cannot, as a rule, be made positive without a bacteriologic study. This is to be carried out on material secured by gland aspiration, smears of which usually show numerous typical bacilli. The rather characteristic growth on different media, with the usual involution forms on salt agar, together with the demonstration of lack of motility and of the habit of producing acid without gas in dextrose media, make the diagnosis so certain that the death of guinea-pigs inoculated with gland material is merely confirmatory. The essential features of sections of the tissues in this infection are acute inflammatory infiltrations, dissolution of connective tissue, hemorrhage, edema and the presence of great numbers of the bacilli in the tissues along the invasion tract.

Boston Medical and Surgical Journal

October 29, CLXXI, No. 18, pp. 659-694

37 Relation of Industry to General Medicine. D. L. Edsall, Boston.
38 Relation of Insurance Companies to Industrial Diseases. F. L. Hoffman, Newark, N. J.
39 Occupational Diseases as Public Health Problem. H. Linenthal, Boston.
40 Some Fatal Surgical Errors. J. S. Horsley, Richmond, Va.

Colorado Medicine, Denver

October, XI, No. 10, pp. 361-402

41 Pathology of Early Gastric Carcinoma. L. B. Wilson, Rochester, Minn.

Journal of Experimental Medicine, Lancaster, Pa.

November, XX, No. 5, pp. 433-543

42 *Influence of Diet on Transplanted and Spontaneous Mouse Tumors. P. Rous, New York.
43 Bacterial Antiferments. J. W. Jobling and W. Petersen, New York.
44 Lipoids as Inhibitors of Anaphylactic Shock. J. W. Jobling and W. Petersen, New York.
45 *Effects of Extirpation of Thymus in Rats. A. M. Pappenheimer, New York.
46 Calcium Content in Bones and Teeth from Normal and Thymectomized Albino Rats. S. Morgulis and W. J. Gies, New York.
47 Influence of Various Substances on Growth of Mouse Carcinoma. M. S. Fleisher and L. Loeb, St. Louis.
48 Immunization Against Action of Substances Inhibiting Tumor Growth. M. S. Fleisher, M. Vera and L. Loeb, St. Louis.
49 Do Substances Inhibiting Tumor Growth Exert Retarding Influence on Regeneration of Skin? W. E. Leighton, St. Louis.

42. **Influence of Diet on Tumors.**—Rous' experiments show that large growths of certain transplanted rat and mouse tumors are checked in their development by underfeeding the host on a special diet. (Sweet's modification of one of Mendel and Osborne's foods) or in some cases by simple underfeeding. Two metastasizing mouse tumors are instances in point. They stopped growing or grew very slowly in hosts underfed on the special diet. The Flexner-Jobling rat carcinoma, on the other hand, was unaffected by the most rigorous and underfeeding on a mixed diet when this was begun after the tumor had been growing for a short period. Experiments to test the influence of underfeeding on recurrence of this tumor gave results that varied, but the findings strongly indicate that generalizations from work with transplanted tumors as regards the effects of diet on spontaneous growths are unwarranted.

By underfeeding on Sweet's food mice with spontaneous tumors, beginning some days prior to operation, it proved possible in most cases to delay for a relatively long period the development of recurrences and the growth of tumor bits (grafts) disseminated at the time of surgical interference. The treatment entailed great loss of weight. Tumor mice kept on ordinary diet previous to operation, but put thereafter on an abundant ration of Sweet's food, developed recurrences as early as the tumor mice on ordinary diet; whereas the growth of auto-implants was much delayed. These results seem attributable rather to a gradual malnutrition induced by the special food than to the circumstance that it lacked a growth principle. In none of the dieted mice was a definite cure obtained. Ordinarily a recurrence appeared and the grafts began to grow soon after the host, again on ordinary food, had regained weight. A few spontaneous tumors seem absolutely unaffected by the most rigorous dieting.

Rous thinks that it is conceivable that recurrences of certain human tumors and the development of metastases may be delayed or prevented for a period by methods somewhat similar to those employed against spontaneous mouse tumors in the present investigation. But generally speaking only the more malignant human tumors would require such palliative measures, and these are precisely the ones that would prove—if experience with mice is an index—least amenable to alterations in the nutrition of the host.

in both instances by infected lymph, which spread by the same path and therefore attacked the same cells. There is no doubt in their minds that if the capsules in the second series of experiments had not burst the reaction would have been of the plasma-cell type, namely, the type of cells characteristic of the subacute inflammations; but as the capsules had burst and the organisms had grown among the tissues, the reaction was of the polyblast type, namely, the type of the acute inflammations. These cells were the direct product of the action of the disease-producing agent and therefore the conditions corresponded to the primary inflammations of Schmaus. But there were small collections of Körnchenzellen, and the authors are convinced that if the animals had lived a little longer and the nerve elements had broken down under the influence of the more prolonged action of the irritant, the tissues would have been infiltrated by these cells and the conditions would have corresponded to the secondary inflammations of Schmaus.

2. **Hereditary Disease of Nervous System.**—The disease described by Batten and Wilkinson is a familial and hereditary one, having its onset in the first three months of life, even if it is not actually congenital. It presents symptoms which in many respects are similar to those seen in cases of disseminated sclerosis, cerebellar disease, and, in its later stages, to Friedrich's disease. It is very slowly, if at all progressive, affects chiefly males, and is transmitted by healthy females. In the family described by them males only are affected. It corresponds to none of the commonly recognized types of familial affection, but the symptomatology so closely resembles that presented by the family recorded by Pelizaeus and Merzbacher that Batten and Wilkinson believe the disease to be of the same nature, although no pathologic examination has been made in any member of the family here described.

When the children were first seen Batten and Wilkinson were inclined to associate the condition with some congenital defect in the development of the cerebellum such as occurs in litters of cats and puppies, and have been recorded by Herringham, Andrewes, Risien, Russell and others, but after studying the pathologic anatomy as put forward in Merzbacher's paper, they have come to the conclusion that their cases probably belong to that group. Six males at least were affected in two generations. Those affected were either congenitally diseased or exhibited symptoms in the first months of life, the progress of the disease being very slow. They were mentally defective and ataxic, showed nystagmus, speech defect, and defective development, with weakness and spasticity of the lower limbs.

3. **Study of Posterior Longitudinal Bundle.**—The study by Muskens of the physiologic phenomena observed after lesions of different parts of the vestibulary system demonstrates that there is a far-reaching differentiation of function in the primary end-stations of the vestibulary nerve. Further, it also shows that the different strands of fibers which connect the vestibular nuclei with the various nuclei in the midbrain and with the region of the posterior commissure in a cerebropetal direction may be more accurately analyzed. The starting point of this analysis is the fact that an ascending degeneration of the crossed vestibulomesencephalic bundle, which forms the bulk of the mesial part of the posterior longitudinal bundle till near the nucleus of the posterior commissure, is always found associated with circus movements to the side of the intact posterior longitudinal bundle. The degeneration of an ascending tract lying immediately lateral to the crossed vestibulomesencephalic tract in the posterior longitudinal bundle formation appears to be equally associated with a circus movement (or rather conjugate deviation) to the side of the normal posterior longitudinal bundle. This tract is further shown to be a homolateral tract originating exclusively in the nucleus of Bechterew, at least in the oral parts of the vestibular region, and terminating in the region of the posterior commissural nucleus. This bundle is styled the homolateral vestibulomesencephalic fasciculus. Both the circus movements observed after lesion of the homolateral or crossed vestibulomesencephalic tracts are associated with conjugate deviation of the head and eyes to the side of the movement, or with loss of lateral deviation of the eyeballs to the opposite side.

From experimental data furnished by Muskens' investigation, it is seen that after a direct lesion in the region of the posterior commissure of the cat on one side, in which the resulting circus movements were directed to the side of the lesion, a descending tract degenerates which lies at the innermost part of the posterior longitudinal bundle of the same side. This tract probably originates in the posterior commissural nucleus. As it stops short in the medulla it is suggested that it may be termed the fasciculus commissuromedullaris. Like the circus movements the rolling movements may serve as a guide in working out the anatomophysiologic analysis of the vestibular complex and the posterior longitudinal bundle formation. After a direct lesion of the complicated nerve fibers, which help to form the vestibular root, a rolling movement toward the injured side is constantly observed, mostly associated with a skew deviation and conjugate rotation of the eyeballs around their anteroposterior axis.

In three cases of lesion of the descending branch of the nucleus vestibularis rolling movements toward the normal side were seen lasting over several days. Lesion of Deiters' nucleus proper was found in two cases associated with rolling movements, moderate in character, toward the side of the lesion. From this nucleus the degeneration spread upward along a tract which lies in the outermost part of the lateral horn of the posterior longitudinal bundle. A direct lesion of this ascending tract or connection is also associated with a tendency to roll toward the side of the lesion. This was demonstrated in five cases. The fibers of this tract appear to end mostly in the tegmentum, although some may be traced to the caudal part of the posterior commissure, in which the fibers appear to lose their medullary sheath; it is therefore suggested that it should be styled the tractus vestibulotegmentalis lateralis. Its origin is apparently in the medium-sized cells of Deiters' nucleus proper, its termination probably in the interstitial nucleus. A comparison of the cases in which the lesion is situated in the region of the posterior commissure leads Muskens to postulate in that region a center, probably the nucleus interstitialis, injury of which (or of its afferent tracts from other parts) in the cat is constantly followed by rolling movements to the normal side. If the descending connections of the vestibular structures which control the circus and rolling movements and those of the superimposed mesencephalic structures be compared, the conclusion seems warranted that the descending connections are far more important in the case of the rolling movements. Relatively few descending fibers which originate in the structures associated with circus movements pass beyond the sixth nucleus.

5. **Aphasia Due to Atrophy of Cerebral Convolutions.**—In the period between 1907 and 1909, Mingazzini's patient showed disturbances in his speech, which gradually increased and consisted in the use of unusual words in ordinary conversation (paraphasia and echolalia). He also experienced difficulty in understanding many questions. After two years (March, 1907, to August, 1909), the examination of the patient revealed true partial sensory aphasia (with automatic echolalia and perseveration), associated with paralexia and almost complete agraphia. In February, 1910, the sensory aphasia had become almost complete and some dysarthria was noticed in his repetition of words. The understanding of words was extremely limited; further, a condition of advanced dementia showed itself, accompanied by symptoms of agnosia. In October, 1910, the speech disturbances had become still more serious; the word deafness, the alexia and the agraphia were complete, while voluntary speech was almost entirely absent. Parallel with these progressive disturbances of speech a condition of mental weakness gradually developed, which at last became a true dementia and was attended with symptoms of agnostic apraxia, and psychial blindness. Two months later (four years after the beginning of the disease) the patient died. The post mortem revealed

severe atrophy of the prefrontal and temporal convolutions, the left side being the most affected, while the histologic examination showed severe alterations in the nerve-cells and medullary fibers of the convolutions belonging to the Broca region (*in sensu lato*) and to T, these changes being greatest on the left side.

6. **Satellite Cells in Mental Disease.**—The analysis by Orton of the relative numerical occurrence of satellite cells in ten cases, each of five psychoses, seems to him to warrant the conclusion that satellitosis cannot be considered in any sense indicative of the type of psychosis, although it has in this series appeared with more consistent intensity in the maniacal depressive cases and has been of very much less prominence in dementia praecox. The reaction elects the deeper cell layers both in regard to frequence of occurrence and degree of reaction. The cortices of the dome, precentral, postcentral and frontal, seems to show the reaction with greater intensity than do the temporal and occipital regions. Age at the time of death seems to play some part in the occurrence of severe reactions, but cannot be considered the only factor. The duration of the psychosis bears no demonstrable relation to satellitosis.

British Medical Journal, London

October 17, II, No. 2807, pp. 653-696

7 Cancer of Duodenum and Small Intestine. J. Bland-Sutton.
8 Present-Day Lessons from Life Work of Mitchell Banks. V. Horsley.
9 *Pinewood Sawdust as Surgical Dressing. C. W. Cathcart.
10 Insects and War: Flies. (1) House-Fly. A. E. Shipley.
11 Outlook in Epilepsy. W. A. Turner.
12 Rheumatoid Arthritis. D. D. Brown.
13 Treatment of Torticolitis. P. B. Roth.

9. **Pinewood Sawdust as Surgical Dressing.**—Sawdust is used by Cathcart as a surgical dressing not only for operation wounds but also for septic cases of all sorts. It has also been much appreciated as a dressing for the shell wounds of the wounded German sailors in Edinburgh Castle, and it is valuable for cases of incontinence of urine. As to the wood, the sawdust from various kinds of pinewood has given good results. The softer kinds are the best, being more absorbent, while the harder kinds although less absorbent, have the advantage of containing more resinous material. Commercial hard woods like mahogany or oak should be excluded if pinewood can be obtained. A simple method of testing the absorbant property of a sample piece of planed wood is to draw a stroke across it with a pen full of ink. If the ink spreads laterally, and dries in quickly as it would on blotting paper, the fiber of the wood is good for surgical purposes. If the ink remains on the surface, as on writing paper, the absorbent power is deficient. Apart from the wood itself, however, a good deal of absorption will take place between the individual particles of the wood.

The method of preparation Cathcart has found useful is the following: Two large standard wire sieves are required —No. 8, that is, eight threads per inch, and No. 40, that is, forty threads per inch. In order to reject the coarse fragments the sawdust as obtained from the sawmill, is passed through No. 8, sieve and allowed to fall on to No. 40. It is then well shaken and rubbed on No. 40, and the very fine particles which pass through are discarded, because they would escape too readily from the prepared pads and cause an inconvenient dust. The sawdust which remains on No. 40 sieve is put into a box or sack and sent to the surgical nurse. The bags are made of butter muslin, and the sizes may be regulated according to requirement. The nurse fills the bag about two-thirds full with the sifted sawdust, and then closes it with colored thread. The filled bags or pads are sterilized by steam in the same manner as other dressings. After use the colored thread is withdrawn, the sawdust thrown away and the bag washed, boiled and dried for future use.

Dublin Journal of Medical Science

October, III, No. 514, pp. 241-319

14 Myasthenia Gravis. Report of Three Cases. R. O. Smyth.
15 Four Cases of Pancreatic Disease. E. J. Malherbe.
16 Pathologic Report of Rotunda Hospital from November, 1912, to October, 1913. R. J. Rowlette.

Journal of State Medicine, London

October, XXII, No. 10, pp. 577-640

17 Medical Inspection in Relation to Special Schools. E. T. Roberts.
18 Medical Treatment of School Children in Rural Districts. A. E. Williams.
19 Training of Teachers in Hygiene. C. C. Douglas.
20 Occurrence of Amebiasis in Malta. P. P. Debono.
21 Toxicity of Extracts of Organs. H. Dold.

Journal of Tropical Medicine and Hygiene, London

October 1, XVII, No. 19, pp. 289-304

22 Systemic Position of Genus Tricophyton Malmsten, 1845. A. J. Chalmers and A. Marshall.
23 Molluscum Fibrosum, Pendulatum atque Elephantiacum. F. S. Harper.

Lancet, London

October 17, II, No. 4755, pp. 931-978

24 *Cancer of Duodenum and Small Intestines. J. Bland-Sutton.
25 Position of Psychiatry and Rôle of General Hospitals in Its Improvement. C. H. Bond.
26 *Incontinence of Urine in Women. D. Newman.
27 Multiple Round-Celled Sarcoma Originating in Nares. C. N. Slaney.
28 Case of Mediastinal Pleural Effusion. A. Rose.
29 Four Cases of Splenectomy following Rupture. R. Cox.
30 Bee-Stings and Anaphylaxis. A. T. Waterhouse.

24. Also published in the *British Medical Journal*, Oct. 17, 1914.

26. **Incontinence of Urine in Women.**—The operation Newman has performed successfully in a considerable number of cases during the last fifteen years is described as follows: The patient may be placed either in the lithotomy or in the elbow-knee position. The posterior wall of the vagina is fully depressed, so as to expose the anterior wall fully in view. The bladder is distended with 12 ounces of boric solution. A straight steel bougie No. 14, with a knob of the size and shape of a horse-bean half an inch from its point, is introduced into the bladder, at first fully and then partly withdrawn, so that the knob comes down to and locates the neck, and by elevating the handle of the bougie the knob is made to throw out the posterior wall of the bladder immediately above the sphincter, and so project it backward and downward. Three sutures, one anterior and two lateral, are now passed through the lips of the os, and the uterus is dragged downward so as to give a clear view of the anterior wall of the vagina.

A median vertical incision is now made from the uppermost point of the knob of the bougie downward over the knob and along the middle of the stem for a distance of 1½ to 2 inches. With blunt pointed scissors cutting on the flat the mucous membrane and muscular coat of the vagina are carefully separated on both sides of the median incision. Down to the submucous tissue of the bladder and urethra, without exposing the vesical mucous membrane itself. The vaginal mucous membrane is removed over a lozenge-shaped area, the center of which corresponds with the position of the most prominent part of the knob of the bougie; the upper angle is just over the point of the instrument. The lower angle corresponds with the stem, while the two other angles point outward one on either side. Incisions are now made to join the apices, and a lozenge-shaped portion of vaginal mucous membrane is removed, exposing a corresponding area of raw surface, the floor of which covers the neck of the bladder and the first half inch of the urethra. The next step of the operation consists in building up a dam to prevent the too easy escape of urine. The successful construction of this mechanical obstruction depends on heaping up a bank of mucous membrane on the vesical side of the septum and supporting it by tightening the structures behind—those on the vaginal side.

The sutures are chromic catgut and are introduced as follows: On the left lip of the wound the needle is passed from left to right; it enters immediately under the vaginal mucous membrane to come out one-eighth of an inch to the left side of the center line of the bougie; it is then carried over the rawed surface to one-eighth of an inch beyond the right side of the bougie, in which it penetrates the tissue, to be brought out on the right lip of the wound. Six sutures are passed in this way. The bougie is now withdrawn, and the sutures are tied, cut and buried. A second row of fine gut sutures is applied to unite the margins of the wound in the vaginal mucous membrane, and the operation is completed. No special after treatment is required, except that it is well to retain a small sized rubber catheter for the first six to eight days, and to cleanse gently the parts twice daily.

Bulletin de l'Académie de Médecine, Paris

October 6, LXXII, No. 30, pp. 103-145. Last indexed August 29, p. 810

31 *Tetanus among the Wounded. C. Walther.
32 *Nature and Prevention of Accidents during Treatment of Obesity with Heart Disease. (Les inconvénients des cures d'amaigrissement chez certains cardiopathes.) C. Fiessinger.
33 Wounds Vary in Severity as Bullet is Fast or Slow. Capitan.
34 Rose-Pickers' *Dermatitis.* (*Les affections des mains chez les cueilleurs de roses de la Riviera.*) L. Revillet.

31. **Tetanus.**—Walther states that twenty cases of tetanus he has encountered among the wounded in his charge all came from a certain district along the Marne where tetanus has long been known to be frequent. It developed only among men wounded by shrapnel, and he thinks only when the exploding pieces hit the ground first or the explosion drove dirt from the ground into the wound. None of the bullet wounds was followed by tetanus. Hence he urges the necessity for prophylactic injection of antitetanus serum as a routine measure after a shrapnel injury. The Académie passed a resolution appealing to the authorities to have an ample supply of the serum on the firing line.

32. **Disturbances Liable to Follow Reduction of Obesity.**—Fiessinger thinks that there is much to sustain the assumption that the fat serves as a kind of filter to hold back certain toxic substances. When the fat is thrown off, these toxic substances make their presence felt, and the patient may develop rheumatism, sciatica, eczema, gout, interstitial *nephritis, or neurasthenia. "The connection between the loss of fat and the development of these troubles is conclusively* shown by their subsidence as the patient puts on a few pounds more of fat." His treatment of obesity is mainly dietetic, having the patient eat lightly seven times a day, so he never gets very hungry. He has had some disturbance like the above in fifteen of his 145 patients with obesity and heart disease, and in three the disturbance took the form of neurasthenia. In all the disturbances ceased as soon as the patients had gained 10 or 12 pounds again after they had previously thrown off from 22 to 45 pounds in a few months. As the fat recedes it seems to leave exposed the morbid taint which then exerts its injurious influence. The amount of reduction permitted should be carefully individualized and not be calculated for the height. See also Paris Letter, p. 1684.

Berliner klinische Wochenschrift

October 5, LI, No. 40, pp. 1677-1696

35 Displacement of Internal Organs with Kyphosis; Seven Photographs of Mounted Torso. (Situs der Thoraxeingeweide bei spitzwinkliger Kyphose.) H. Virchow.
36 *Partial Interruption of the Operation of the Mind and Periodical Insanity. (Schizothymie und Zyklothymie.) O. Kohnstamm.
37 Roentgen Examination of Stenosis of the Small Intestine. (Dünndarmstenosen.) E. Marcuse.
38 Carbon-Dioxid Snow for Correction of Small-Pox Pitting. (Neue Erfahrungen über Pockennarbenbehandlung.) P. Unna, Jr.

October 12, No. 41, pp. 1697-1716

39 *Dysentery. (*Zur* Behandlung der Ruhr.) F. Göppert.
40 Wounded Prisoners in Berlin. (Kriegsgefangenenlazarett Alexandrinenstrasse.) Brettner. (Die ersten Wochen kriegschirurgischer Tätigkeit.) W. Levy. (Schussverletzungen von Gehirnnerven.) *E. Froehlich.*

36. **Schizothymia.**—Kohnstamm's "schyzothymia" is best defined by an example of it. He cites, for instance, the paralysis suggested during hypnosis and persisting afterward. It is an interruption in the psychic continuity, and search for and removal of the cause in such a condition may realize a cure when otherwise the trouble would seem to be incurable cyclic insanity or the like. He compares it to a sand bank in a level desert of sand, and discusses it from various points of view.

39. **Dysentery.**—Göppert has had extensive experience with dysentery in children in the last few years and thinks that the lessons learned with them can apply also to adults, especially the necessity for feeding with mineral elements which have been lost in such amounts, also albumin in the most easily assimilated form and carbohydrates, but not too exclusively the latter. Whey and buttermilk supply the needed minerals for infants, and with this can be combined meat juice or soup. At first the fasting must be complete, but later hunger is liable to aggravate the course of the disease, but the digestive organs are left very sensitive so that motor insufficiency of the stomach is frequent. Fruit juices are also useful in the later course. The tenesmus and diarrhea are sometimes benefited by rectal injection of bolus alba, a handful to a liter of water, with a teaspoonful of salt. Its use internally is lauded by some, but Göppert thinks that the mild cases will get well without it and in the severest cases he says that it is impossible to influence with it the number of bowel movements or the general condition. Castor oil at first is the main reliance, and combination with opium may render good service. Biermer's mixture of krameria, cinnamon and logwood hastens the subsidence of the disease already on the wane, and he advocates it as a valuable aid even with this restriction.

The formula is

		c.c.		
℞	Decocti Ratanhiae (50)........	450		℥ xv
	Extr. Campechiani	5 to 8	or dr. i to ii	
	Sir. Cinnamoni ....qs. ad	500		℥ xvi

Dose 20 or 30 c.c. five or six times a day.

Deutsche medizinische Wochenschrift, Berlin

October 1, XL, No. 40, pp. 1801-1824

41 *The Food of the Populace during the War. (Die Volksernährung im Kriege.) M. Rubner.
42 Care of the Wounded in the *Field.* (Einleitung in die Kriegschirurgie.) V. Czerny. (Grundlagen der heutigen Kriegschirurgie.) E. Lexer.
43 *Dysentery. (Zur Klinik der Bazillen-Ruhr.) J. A. Grober.
44 *Venereal Disease in the Army. (Bekämpfung der Geschlechtskrankheiten im Kriege.) A. Blaschko.
45 The Medical *Service in the Navy.* (Kurzer Ueberblick über das Marine-Sanitätswesen.) H. F. W. *Hoffmann.*

41. **Supply of Food in Germany.**—Rubner says that Germany now leads all other European nations in the amount of meat consumed per capita, namely, 52.3 kilograms per year (1912). The figure for England was 47.6; for France, 33.6; for Austria, 29; Russia, 21.8, and Italy, 10.4. He states that Germany does not import meat and hence the supply will not be cut off by the war. "The only loss will be the eggs and poultry from Russia and sea fish, but these can probably be obtained from neutral countries in sufficient amounts." Only about three-fourths of the wheat used in Germany is raised there, but there is an overabundance of rye, and this will more than compensate the loss of wheat and of rice. Only 28 per cent. of the potato crop has been used for the table; the distillers took 4.6 per cent., the starch factories nearly as much, and nearly 50 per cent. was used for fodder. A large proportion of the potatoes usually rot before spring, and here a change must be made to prevent this waste. Desiccated potatoes can be used to advantage in soups, purées, etc.

Germany has been in the habit of exporting its rye and importing cheaper fodder from Russia. The loss of this 3,500,000 tons of cheap fodder can be made up from the surplus of other grains. Parliament has regulated the matter so there can be no wholesale slaughtering of cattle for pecuniary reasons. He reiterates that the stock of cows must be maintained at all hazards, and that the supply of milk can be rendered more plentiful by a little more economy in consumption of butter. He figures that if each person would stint himself just a little (1 gm.) butter each day this would be equivalent to releasing the milk of 300,000 cows for other purposes. He continues, "When the man of the house is away, the family table is usually much simpler. It is of the greatest importance that the army is now living in and off the enemy's country and that many accumulated stores of provisions have fallen into our hands."

43. **Dysentery.**—Grober states: "In the present epidemic there have been 19 deaths in 400 cases, and there were 23 house infections. The bacilli alone do not cause dysentery; there are probably many healthy carriers by this time. Some

error in diet throws down the barriers by inducing irritation in the bowel. The first symptoms generally appear about three or four hours after ingesting too young beer, soggy bread or unripe fruit or drinking much contaminated water. They range from slight discomfort to the severest toxemic conditions in a few hours but intense tenesmus and blood in the stools are the rule. The pains are sometimes ascribed to the stomach; the transverse colon is probably responsible for this." He has one patient who for six weeks has had fifteen or twenty thin, bloody stools daily, but as long as the heart keeps strong, hope should not be given up. Convalescence is very slow and for weeks the patients seem apathetic and dull. Even in the mildest cases, recovery takes about two weeks, and relapses are not uncommon. In treatment, serotherapy is the main reliance. A dose of castor oil is given next, but he never saw much benefit from tannin preparations. Light red wine, boiled and with cinnamon, seemed to give great subjective relief. Tincture of opium is reliable but such large doses are necessary that the effect on the heart may be detrimental. In many severe cases the distress was so extreme that morphin had to be given. Singultus was hard to control; sometimes it yielded to a narcotic after scraps of ice with a few drops of some fruit juice had been dissolved in the mouth. Opium suppositories occasionally, but not always, relieved the tenesmus; bolus alba did not seem to display any efficacy in the severer cases in which alone it was used. His experience confirms the necessity for heart stimulants if the circulation weakens. He did not try ipecac. Moist heat to the abdomen gave great relief as a rule. The patients were kept on gruel, tea, cocoa and light red wine as long as the stools contained blood and mucus, but henceforth he is going to try a little more nourishing food. (The *Berlin. klin. Wchnschr.* of October 12, reports 924 cases of dysentery at over forty scattered points in Germany, including Cologne, Breslau, Kattowitz and Kreuzburg, mostly among the prisoners.)

Prophylactic measures are simple, refraining from touching the face with the hands (smoking) and cleanliness in eating, but above all refraining from errors in diet. "Medical men in the tropics have found it an aid in prevention to take five drops of dilute hydrochloric acid in some beverage at each of the principal meals. The dysentery bacillus is extremely susceptible to hydrochloric acid." "Transmission of the disease by flies has been abundantly demonstrated anew in the present epidemic, and it is impossible to overestimate this danger."

44. **Venereal Disease in Wartime.**—Blaschko remarks that down into the eighteenth century an army of prostitutes regularly accompanied every army in active service, sometimes outnumbering the troops. "But this army of female camp-followers," he continues, "did not become a hygienic danger until at the end of the sixteenth century syphilis swooped down on the troops and has been at home throughout Europe ever since. The introduction of the system of compulsory military service altered all this, but even Napoleon was unable to prevent hordes of female camp-followers from accompanying his army in the campaign into Russia, and in the recent Russo-Japanese War the Russians, especially the officers, were accompanied by some."

"Although the present war is far graver than any of the wars in previous centuries, yet we must accept the possibility of a great increase in venereal diseases. The men left in charge of a conquered city are particularly exposed to this danger. In some the brothels have been closed, but in other cities, where people still believe in the hygienic efficacy of these institutions, they are flourishing more than ever. But conditions are not much safer even where there are no brothels. I have seen here in Berlin a number of cases of recently acquired gonorrhea and syphilis among the troops and the number of reservists who were found healthy on joining the colors and who already have been sent back from the front for treatment of gonorrhea acquired since is larger than is generally supposed."

"During the last half of the Franco-Prussian War, venereal diseases formed 9 per cent. of all the morbidity. It is self-evident that men with fresh gonorrhea are unable to go on marching or fighting."

"In peace, regulation of prostitution does not accomplish much, but the strict measures that can be enforced under exceptional conditions, as during a campaign, may be of the greatest utility. Absolute prohibition of public dances, and the early or total closing of saloons will help, and extreme care must be taken to weed out any loose women that may attach themselves to the army in the guise of nurses, etc. This sifting out must be done chiefly in the base stations. The hygienist accompanying the corps must have previously informed himself as to the conditions regarding prostitution in each district the corps enters."

"Many physicians regard it as impossible to prohibit entirely to the troops all intercourse with prostitutes. But this is absolutely false, according to my opinion" . . . "Keeping secret a beginning venereal disease justifies punishment." Blaschko remarks in conclusion that the many women deprived of their livelihood now by the shutting down of factories, etc., present a particularly serious danger, and it behooves the authorities to provide employment for them in some way or at least food and shelter. Well-to-do women who serve gratuitously from patriotic motives in preparing articles to be sent to the soldiers, etc., had better ponder whether it would not be better to set some of the unemployed at the task and pay them for it. He protests against the exclusion of cases of venereal disease from the hospitals, to make room for wounded soldiers as has been done in some quarters, calling it a very short-sighted policy which will bring retribution later.

Medizinische Klinik, Berlin

October 4, X, No. 40, pp. 1527-1554

46 Internal Diseases in the Army. (Ueber einige während des Feldzugs vielleicht wichtige innere Krankheiten.) M. Matthes.
47 Indirect Injury of the Ear from Explosives. (Indirekte Schädigung des Gehororgans durch Schusswirkung.) Haenlein.
48 Vaccination against Typhoid. (Schutzimpfung gegen Typhus.) H. Sachs.
49 Splenectomy for Pernicious Anemia. (Die Milzexstirpation bei perniziöser Anämie.) W. Hansing.
50 Systematic Therapeutic Inhalations. (Fortschritte der Inhalationstherapie.) A. Haupt.
51 Treatment of Subcutaneous Hematoma. O. Nordmann.

October 11, No. 41, pp. 1555-1580

52 *Skin Diseases among the Troops. ((Bedeutung der Hautkrankheiten für den Krieg.) F. Pinkus.
53 *The Infectious Diseases to Be Reckoned with during a Campaign. (Mit welchen Infektionskrankheiten haben wir während des Feldzugs zu rechnen?) H. Eichhorst.
54 *Soldiers' Foot Tumors. (Die Fussgeschwulst der Soldaten.) G. Müller.
55 Orthopedic Surgery in Wartime. A. Bum.
56 Chronic Nephritis. (Klinische Erfahrungen und Anschauungen über die Brightsche Nierenkrankheit.) F. Volhard. Commenced in No. 40.
57 Ankylosis of the Spine. G. Arnheim.
58 The Metabolic Processes during Thyroid Treatment. (Stoffwechselvorgange bei Schilddrüsenbehandlung.) L. Hirschstein.

52. **Care of the Feet.**—This is only one of the points touched on in Pinkus' article on the importance of skin lesions and disease among the troops. He says "Every soldier is trained in the care of his feet, from the very beginning of his military service. The troops are trained to stand the longest marches by combating sweating of the feet, by the use of suitable shoes and inner covering for the feet, and by systematic exercise of the muscles during the exacting drill. The foot-cloths used instead of stockings are of great service in protecting the feet against getting sore. They are easily changed, easily cleansed, as they dry rapidly after washing, and if they shrink during washing this does no harm. Washing and drying are much harder with woolen socks, and they are liable to shrink and squeeze the toes, while the spots worn thin or in holes come always at the same points on the foot, and where there is greatest danger of abrasion. With the foot-cloth, on the other hand, fresh parts each time can be drawn over the heel, etc., thus protecting them against injury. Those unaccustomed to these foot-cloths may not like them, and for such the next best is to draw on a second sock over the first, both amply large. The woolen double sock forms an extraordinarily elastic foundation for the foot, keeps it

warm, and protects it against wet and against pressure from the stiff and shrinking leather when it gets wet. The double socks also absorb perspiration well and enable the socks to be changed about, putting on first one and then the other." He warns that sweat and dirt invite eczema in folds in the skin, and also annoying and tenacious *mycosis*, especially around the anus and genitals—all of which can be warded off by systematic cleanliness, especially sponging off with alcohol.

53. **Infectious Diseases Liable to be Encountered During the War.**—Eichhorst says that no means of protection against exanthematous typhus, "war typhus," like vaccination against small-pox, is known, and it is liable to be brought into Germany by Russian prisoners of war. Bacteriologic differentiation of it is not on a sure footing as yet. "With salvarsan we can cope with relapsing fever; plague is not near enough to cause alarm, and cholera can be kept out by scrupulous hygiene, but tropical dysentery is liable to be encountered as troops from Africa and India are fighting with the Allies."

54. **Foot Swellings in Soldiers.**—Müller remarks that the Roentgen rays have explained this trouble, first described in the middle of the last century as peculiar to soldiers obliged to march long distances. The rays revealed it to be a fracture or periostitis of a metatarsal bone. About 22.5 per thousand of the troops develop this trouble each year, with or without contributing trauma. It generally can be cured in fifteen to thirty days; only about 0.5 per thousand have any disturbance left, from pains or too exuberant callus. It appears as a white, doughy swelling on the dorsum of the foot. If the tenderness is limited to one point, the trouble is probably a fracture. In a few days walking becomes impossible. By strapping the foot with plaster the man can continue to use it, applying massage, warm baths and moist heat, renewing the plaster each time. If he can be kept in bed, stasis hyperemia and superheated air are effectual; but a plaster cast or extension may be necessary if there is dislocation of the fractured stumps. The adhesive plaster is applied with the foot standing flat on a stool, the heel at the edge. The strip of plaster is applied to the back of the foot, at the tubercle of the fifth metatarsal bone, drawn tight straight down over the outer edge of the foot and around under the sole while, with the other hand, distally, the metatarsal bones are squeezed together and their dorsal convex arch exaggerated. The plaster is then brought up on the dorsum above the first cuneiform bone. The plaster thus serves to hold the middle part of the foot firm and acts as a splint for the broken bone while strengthening the arch. Other conditions that may be confounded with it are acute articular rheumatism, flat-foot and inflammation in the joints, cellular tissue, tendon sheaths, or bursae.

Münchener medizinische Wochenschrift

October 6, LXI, No. 40, pp. 2025-2056

59 *Roentgen Treatment of Surgical Tuberculosis, etc. (Zur Röntgentiefentherapie bei chirurgischen Krankheiten.) J. Oehler.
60 Is There an "Injurious Residue" in Infant Feeding? (Gibt es einen "schädlichen Nahrungsrest" beim Säugling?) A. Uffenheimer. Concluded in No. 41.
61 Influencing of the Subconscious Centers by Hypnosis. (Zur Kenntnis der Beeinflussung vegetativer Zentren durch die Hypnose.) R. Mohr.
62 Traumatic Ossifying Myositis. H. Schöppler.
63 Neuritis of the Recurrent Nerve. (Zur Lehre und Behandlung der sogen. Medianstellung der Stimmlippe bei Rekurrensneuritis.) R. Hoffmann.
64 Protection of Roentgenologists in Fluoroscopy. (Zum Schutze des Arztes bei Röntgendurchleuchtungen.) L. Moses.
65 *Tetanus. (Einige praktisch wichtige Gesichtspunkte in der Tetanusfrage.) Kreuter.
66 *Treatment of Tetanus Cramp of Respiratory Apparatus by Cutting Both Phrenic Nerves. (Behandlung schwerster Atmungskrämpfe beim Tetanus durch doppelseitige Phrenikotomie.) W. Jehn.
67 *Bolus Alba in Diarrhea, Dysentery and Cholera. J. Stumpf.
68 Return to the Front of the Slightly Wounded. (Rückkehr Leichtverwundeter an die *Front*.) G. Herhold.

59. **Roentgen Treatment of Surgical Affections.**—Oehler calls attention to the fine results he has obtained with deep Roentgen treatment of accessible surgical affections, even when there was mixed infection. Subsidence of pain and improvement of function were particularly evident with incipient processes in the knee and head of the humerus, but it was difficult to influence the hip joint. The method is peculiarly advantageous for tuberculous lymph-glands in the neck, spina ventosa, and tuberculous processes in the smaller bones and joints, in the ribs, sternoclavicular joint, and tendon sheaths. Lymphoid tissue is peculiarly susceptible to Roentgen treatment, and "scrofulous" glands in particular, but goiter does not seem to respond well. In the exceptional cases in which benefit was observed, it was only transient. In one case Basedow symptoms came on for the first time after the third exposure of the thyroid.

65. **Tetanus.**—Kreuter says that reports from the various hospitals harboring the wounded from the front almost without exception mention the development of tetanus in more or less numerous cases. Injuries from shrapnel, from being run over and from being kicked by a horse expose to special danger of tetanus. "The tetanus bacillus," he continues, "does not induce suppuration so that the aspect of the wound does not even hint at its presence." "Disturbance in swallowing, with no cause for it evident in the throat, is characteristic and trismus may be early apparent." In the hospital in his charge (Erlangen) he has had a number of cases of local tetanus, the cramps restricted to the part directly injured. The mortality averaged 80 or 90 per cent. when the incubation period was less than eight or ten days; immediate amputation of the injured limb failed to arrest the tetanus in the two cases in which this was done. He warns that we must not look for improvement after injection of antitetanus serum; all it can do is to cut off the further supply of the toxin to the nervous system. Other measures must be called on to arrest the convulsions, as death comes usually from exhaustion or suffocation. He gives morphin every two or three hours, with a rectal injection of chloral at night. Antitoxin serum, according to Permin's statistics, has reduced the mortality from 95 to 73 per cent. with incubation of less than ten days, and from 70 to 40 per cent. with longer incubation. He gave magnesium sulphate according to Meltzer and Auer's technic and found that it modified the convulsions almost instantaneously but caused such serious disturbance in breathing that artificial respiration had to be kept up for hours. To combat this, he suggests that Kocher's method of tracheotomy and insufflation of oxygen might be tried or Arnd's method of rinsing out the lumbar sac. Baccelli's phenol method has no curative action and as a sedative it is far surpassed by other drugs. The brilliant statistics in regard to its use that come from Italy are explained by the mild course of tetanus in that country. The mortality is said to have averaged only 20 per cent. even before tetanus serum was introduced.

66. **Cutting Both Phrenic Nerves in Tetanus.**—Jehn reports from Sauerbruch's clinic at Zurich a case of extremely severe tetanus in a boy of 8 who was suffocating from recurring spasms of the respiratory apparatus, each lasting three or four minutes with cyanosis and unconsciousness. The rigid thorax and spasm of the diaphragm rendered artificial respiration impossible. After the third spasm of the kind Sauerbruch severed the phrenic nerve on each side through an incision along the posterior margin of the sternocleidomastoid, under ether. The type of breathing altered at once and artificial respiration became possible. The boy had thirty-five severe convulsions afterward, but with oxygen, artificial respiration and a temporary gastrostomy he was tided along to final recovery. The boy shows no ill effects now, four months later; the diaphragm rises and falls mechanically with the breathing. Expectoration proceeds even better than under normal conditions.

67. **Bolus Alba in Dysentery and Cholera.**—Stumpf reiterates his advocacy of bolus alba—kaolin—as an effectual and harmless method of treating intestinal diarrheic troubles. It acts mechanically, burying the germs under the insoluble powder and protecting the inflamed mucosa. His method has been repeatedly referred to in The Journal. He says that the authorities have laid in large supplies of bolus alba to combat dysentery and cholera, and adds, "If ever a method

of treatment had a scientific basis, it is this one. I got my enthusiasm for it from the microscopic findings." A smaller dose by the mouth than the suspension of 300 gm. is inadequate.

Policlinico, Rome

August 9, XXI, No. 32, pp. 1145-1180

69 The Right Hemisphere of the Brain in Connection with Speech. (Emisfero cerebrale destro e linguaggio.) T. Silvestri.
70 Duodenal Ulcer. U. Rosi.

August 16, No. 33, pp. 1181-1216

71 Megacolon with Appendicitis. O. Cignozzi.
72 Diagnosis of Senile Cataract, Chronic Glaucoma and Atrophy of the Optic Nerve. G. Sabatini.

August 23, No. 34, pp. 1217-1248

73 Anthrax Pustule Cured by Serotherapy; Two Cases. (Pustola carbonchiosa guariti col siero anticarbonchioso Sclavo.) A. Bruni.

August 15, XXI, Surgical Section No. 8, pp. 361-412

74 *Laryngectomy for Tumor: Two Cases. (Laringectomie per neoplasma col processo di Durante.) A. Bevacqua.
75 *Papilloma of Kidney Pelvis; Two Cases. (Papillomi del bacinetto.) P. Marogna.
76 *Operative Treatment of Exophthalmic Goiter. (La cura chirurgica del morbo di Basedow.) I. Scalone. Commenced in No. 7.
77 *Removal of Infected Gall-Bladder free from Gall-Stones. (La colecistectomia nelle colecistiti non calcolose.) O. Cignozzi.

September 15, No. 9, pp. 413-460

78 *Experimental Transplantation, Decapsulation and Fixation of the Kidney. A. Poggiolini. Commenced in No. 8.
79 *Jet of Hot Air in Treatment of Granulating Wounds. (Sul trattamento delle superfici granuleggianti colla corrente d'aria calda con speciale riguardo al trattamento delle ustioni.) U. Stoppato.
80 Undescribed Fungus Found in Pus in Chronic Upper Jaw Process. C. L. Rusca.

74. **Laryngectomy for Cancer.**—Bevacqua adds two new cases to the four previously published in which the entire larynx was removed by Durante's technic, and ten other cases have also been published by others. These bring to ninety-nine the number of cases of total laryngectomy on record in Italy. Bevacqua's first patient survived the operation for nearly two years before succumbing to metastasis. The second patient died of pneumonia ten days after the operation. Durante's technic thus does not guarantee against postoperative pneumonia but wards it off better than other methods, as a rule. The flap starting at the angle of the jaw on each side, skirts the anterior margin of the sternocleidomastoid and reaches down to 3 cm. from the upper end of the manubrium. This flap is turned back on a level with the hyoid bone. The cannula is introduced into the trachea after incising the thyrohyoid membrane, and then the larynx is excised from above down to the second ring of the trachea. The flap is then turned back and sutured to the edges of the mucosa of the pharynx and esophagus so that the lower point of the flap rests on the stump of the trachea and is sutured here. Of all the raw surfaces nothing is left exposed but two strips at the side which are packed with gauze. The patient can swallow by the end of the first day.

75. **Papilloma in Kidney Pelvis.**—In the first of the two cases reported the kidney was removed on account of the pains, hematuria and other findings indicating a tumor in the kidney pelvis. After three years of health, symptoms developed suggesting a similar growth in the remaining kidney. This patient was a man of 40. The other was an elderly woman with hydronephrosis and papillomatous growths in the kidney pelvis. The shell of kidney left was cleared out and sutured to the skin and the patient recovered.

76. **Operative Treatment of Exophthalmic Goiter.**—Scalone reviews the literature of the last three years on this subject, his conclusions being all in favor of operative measures in suitable cases, and he urges practitioners to insist on it before irreparable lesions become installed.

77. **Cholecystectomy for Infected Gall-Bladder without Stone.**—The two cases reported by Cignozzi confirm the harmlessness and various advantages of removing the gallbladder when it is the seat of chronic or subacute inflammation. One patient had suffered from recurring colic for three years, the other for six weeks.

78. **Effect of Conservative Operations on the Kidneys.**—Poggiolini gives illustrations of the findings in the kidneys of twenty rabbits and a number of controls after a kidney had been subjected to various experiences resembling those commonly encountered in clinical work.

79. **Hot Air Treatment of Granulating Surfaces.**—Stoppato noticed that after a burn the parts left exposed to the air healed more rapidly than regions dressed with various salves, etc., or merely shut off from the air. This suggested that keeping the surface dry would be beneficial and to promote this he applies a jet of hot air. A number of illustrations are shown of the way in which rebellious burns promptly healed under fifteen to thirty applications of the jet of hot air. Heat evidently stimulates repair of epithelium by the hyperemia which it induces.

Hospitalstidende, Copenhagen

September 30, LVII, No. 39, pp. 1201-1224

81 *Conglutination by Karvonen's Technic as Substitute for the Wassermann Reaction. W. Leschly and H. Boas.
82 *Tumor of the Acoustic Nerve; Six Operative Cases. A. Wimmer. Commenced in No. 38.

81. **Conglutination Test Not as Reliable as Wassermann's.**—Leschly and Boas applied Karvonen's technic in 456 cases, including 278 known syphilitics, but found the results less instructive than the Wassermann, positive results being obtained in a number of non-syphilitics, and vice versa.

82. **Tumors in Acoustic Nerve.**—In Wimmer's six cases the outcome of the operations was not very encouraging. The first patient, a woman of 35, died from infection of the wound. She had been deaf for several years on the side of the tumor before other signs of a brain lesion became apparent. No such "free interval" was apparent in the second case, a man of 51, who for eighteen months had had headache, vertigo, vomiting and other symptoms of a brain tumor. Deafness on that side developed suddenly after a few months. He died about six hours after removal of the large sarcoma. In the third case there was a free interval of seven years between the initial deafness and the other symptoms of a brain tumor. Intervals of blindness on this side were the next symptoms. He died the third day after the sarcoma had been shelled out. The fourth patient referred all his symptoms to the effects of a lighting stroke in 1908, which had left him paralyzed and deaf on one side, but this could not actually have been the case as it seems improbable that a gliosarcoma could have developed so rapidly in consequence of the man's being struck by lightning. The tumor must have been growing at the time and the lightning stroke induced hyperemia in it and an apoplectic attack. This subsided as the extravasated blood was absorbed, leaving the symptoms of merely the brain tumor. He died suddenly five hours after the operation. The fifth patient was a woman of 55. Four years before she noticed that she had suddenly become deaf in the right ear. During the following years disturbances in gait gradually developed and finally vision became impaired and then intense pain developed suddenly in the left side of the face. The left side of the tongue felt as if she had burnt it and her speech was thick, but there was no headache, no vomiting or psychic torpor as in some of the above cases. Other signs confirmed the diagnosis of a tumor involving the acoustic nerve, and it was successfully removed. In a sixth case intervention had to be restricted to a decompressive trephining, leaving a safety-valve opening which was of great benefit.

Hygiea, Stockholm

LXXVI, No. 17, pp. 961-1008

83 Attempt to Cut Adhesions in Preparation for Artificial Pneumothorax. M. D. Jacobson. See abstr. 92, p. 1616.
84 Abnormal Location of the Appendix. (Till kännedomen om anormala appendixlagen.) A. Troell.

Norsk Magazin for Lægevidenskaben, Christiania

October, LXXV, No. 10, pp. 1107-1248

85 *Adhesive Pericarditis. (Adhærent perikardium.) P. F. Holst.
86 *Kidney Transplantation. (Homoplastisk nyretransplantation.) R. Ingebrigtsen.
87 *Diabetes and Pregnancy. (Diabetes og graviditet.) H. C. Geelmuyden.

88 Tests for Estimation of Functional Capacity of Lacrimal Apparatus. (Fluorescein og argyrol til undersøkelse av taareledningen.) H. Lystad.

85. **Adhesive Pericarditis.**—Holst found evidences of adhesions in the pericardium in about 4 per cent. of a series of 1,586 necropsies. In 30 of the 61 cases there was no valvular defect. In the other 31 cases there was tuberculosis in 10, chronic nephritis in 6 and only 3 cases of "pure" adhesive pericarditis. The details of 2 in this last group are reported in full. The patients were men of 22 and 30. The younger man developed pericarditis after diphtheria at 14 and the symptoms from adhesion gradually became manifest in the course of eight years. The other patient had always been healthy. Both were treated by resection of three ribs over the apex region to reduce the resistance opposed by the rigid wall to which the pericardium had become attached. The effect was strikingly good in the first case and the young man was able to resume his work as a clerk. Later some ascites and edema returned, and the liver enlarged again, but the general condition has kept good during the five years to date. Before the cardiolysis there had been cyanosis, difficulty in breathing and so much dropsy that the patient was confined to bed at times. The heart was not enlarged and the sounds were pure. No apex beat was perceptible and the fourth and fifth ribs and interspaces were dragged inward at each systole. There was no albuminuria, no paradoxic pulse and no diastolic collapse of the veins. The operation gave immediate relief.

Conditions were about the same in the other case except that the apex beat was perceptible and there was diastolic vein collapse. Roentgenoscopy showed an irregular shadow supposed to be a strip of calcification, as also shadows suggesting adhesions running from the heart to the right diaphragm. Gradual improvement followed the operation, but the ascites returned later and it has had to be tapped several times during the nearly two years since, so that the operation was but a dubious success.

He discusses the differentiating points, with curves from various cases, and emphasizes that cardiolysis acts exclusively on the symptoms which result from the parts having been connected by adhesions. Complicating "iced peritonitis" or stasis peritonitis, or cirrhosis of the liver, or myocarditis may modify the clinical picture, but the symptoms from these are not influenced by any operation on the chest wall.

86. **Homotransplantation of Kidneys.**—Ingebrigtsen states that some of his experiments on dogs and cats proved technically successful but still the transplanted kidney lost its vitality. He thinks that there is little hope of clinical transplantation of these organs, on account of the individual differences between the donor and the recipient. This will not be possible until means are discovered to estimate beforehand the serologic and biologic properties of each party and thus select those that fit together.

87. **Diabetes and Pregnancy.**—Geelmuyden comments on the connection between the functioning of the female internal genital organs and carbohydrate metabolism, saying that glycosuria develops regularly in about 10 or 12 per cent. of all pregnancies. Some have encountered it in 40 per cent. Usually lactose is the sugar in the urine in this benign pregnancy glycosuria, but it may be grape sugar or both. The proportion of sugar in the urine may be so large as to suggest severe diabetes with acidosis. Differential points are its onset first during the pregnancy, its independence of carbohydrates in the diet, and the absence of polyuria and excessive thirst. He has known instances of these latter symptoms, polyuria, thirst and pruritus occurring with unmistakable pregnancy glycosuria. Knowledge that the urine before the pregnancy was free from sugar is a great help. Also the findings that the acidosis does not fluctuate with the intake of carbohydrates. Normal or subnormal proportion of sugar in the blood sustains the assumption of the benign form. In case actual diabetes is suspected, the diet must be regulated very cautiously as there seems to be a special liability to acidosis and coma in pregnant women. Carbohydrates must be cut down very cautiously, taking a couple of weeks for it, and always under constant control of the urine. Bicarbonate may also be required and "oatmeal cures."

Opinions are divided as to the necessity for terminating the pregnancy; cases are on record in which evacuation of the uterus arrested incipient coma and undoubtedly saved the woman. Waiting to save also the child, has often resulted in the loss of both lives. Even in the cases of apparently mild diabetes, the outcome for both may be disastrous. If the woman was under observation for some time before the pregnancy, it is usually possible to tell whether it now is of a progressive or stationary type; if not, study of the case over a sufficient period may throw light on this. It is a question of general internal medicine and not gynecologic alone, and strict individualization is indispensable. If the pregnancy is to be terminated, we must bear in mind that diabetics do not stand well general anesthesia and cutting operations. Geelmuyden has known chloroform to bring on coma in diabetics. He thinks it is not always necessary to forbid pregnancy for diabetics. They must be warned, however, of the danger they run. It is more threatening the younger the patient, so that quite young women with diabetes should be emphatically warned against possible conception. His long bibliography on the subject does not include any American names.

Ugeskrift for Læger, Copenhagen

September 24, LXXVI, No. 39, pp. 1055-1720

89 *Typhoid Bacilli in the Blood Revealed by Microscope. (Den direkte, mikroscopiske Paavisning af Tyfusbacillen i Patientens Blod og denne Undersøgelses Betydning for Diagnose og Behandling.) V. A. Wille.

90 *Cancer Disappears after Intercurrent Erysipelas; Three Cases. Strandgaard.

89. **Typhoid Bacilli in the Blood Under the Microscope.**—Wille writes from Java that the microscope revealed the typhoid bacilli in the blood at every one of his 160 examinations in sixteen cases. After an error in the diet the number of bacilli in the fields was materially increased, even before there was any rise in temperature. As soon as the error in diet was corrected, the number of bacilli dropped off. In this way it was learned that fresh milk was not a suitable food for typhoid patients. They thrived much better on unsweetened condensed milk. The microscope was also a guide to know how much milk could be assimilated by the different patients. When the individual limit was overstepped, the bacilli in the field ran up from 30 to 250 as also after large doses of drugs. One of the patients was thus proved unable to eat meat; far into convalescence, any meat or fish at once sent up the number of bacilli. Wille's experience further demonstrated that the finding of typhoid bacilli in the blood does not necessarily imply existing typhoid; they may be relics of typhoid infection years before. In nearly all his cases bacilli were still to be found in the blood months after recovery from the disease. In a later series he examined the blood of fifty healthy persons in Denmark and found scanty typhoid bacilli in the blood in 50 per cent. while the proportion had been over 78 per cent. in sixty-six healthy Javanese examined and the bacilli were much more numerous. He believes that a person can have typhoid bacilli abounding in his blood without his being what is called a bacilli-carrier. Burri's technic was found practical and reliable for showing up typhoid bacilli under the microscope.

90. **Cancer and Erysipelas.**—Strandgaard reports three new cases in which severe wandering erysipelas developed in three elderly persons with a palpable cancer in the colon or breast, primary or a recurrence. The tumors rapidly subsided during and after the erysipelas, and striking improvement in the general health followed. The mammary cancer retrogressed completely. The intestinal cancers likewise retrogressed but one soon returned and proved fatal. In the other case the bladder became infected and the man died. The infection probably was from the breaking-up cancer.

The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. LXIII, No. 21 CHICAGO, ILLINOIS NOVEMBER 21, 1914

THE WET NURSE IN HOSPITAL PRACTICE*

FRANK SPOONER CHURCHILL, M.D.
Attending Physician, Children's Memorial Hospital
CHICAGO

The high death-rate during the first year of human life is a phenomenon now attracting the attention of all civilized peoples. It is a condition peculiar to no one nationality, city or community, but prevails everywhere the world over. Broadly speaking, this mortality is due to ignorance and poverty. Hence most of these deaths occur in the homes of the poor and ignorant, both in cities and rural districts. A large proportion, however, is contributed by infant asylums, institutions and hospitals. It is with the high death-rate in the last named institution—babies' hospitals—together with measures taken to combat it, that this paper deals.

It is somewhat startling to note the high death-rate which prevails in even our best infant hospitals. It ranges from 30 to 40 per cent. in different institutions in different years. The reason is not far to seek; the babies are brought to the hospital invariably in a state of chronic malnutrition, often suffering from some acute disease. Their resisting power is low. Their progress is slow, necessitating a long stay in the hospital, thereby exposing them to the danger of communicable disease, of the respiratory tract in winter, and of the intestinal tract in summer. All of these factors result in a high death-rate.

Modern methods of substitute feeding, so successful in private practice, are not attended with the same beneficial results when applied in hospital practice. One baby dying out of every three admitted is hardly a satisfactory record. It is undoubtedly this unsatisfactory result with substitute feeding which is giving rise to the tendency to revert to the more widespread use of human milk in the management of these hospital cases. The superiority of breast milk to all other foods for babies in health is universally acknowledged. It would seem as if its use among sick babies also ought to be attended with results better than those attained by any other food. In accordance with this view the staff of the Children's Memorial Hospital have, for a period of five years, resorted to the use of human milk in their management of the hospital infants. During the first two years of this period, 1909-1910, breast milk was used irregularly; during the last three years, 1911, 1912 and 1913, more regularly and constantly.

It is to a discussion of the methods used and the results there obtained that I now invite attention.

METHODS AT CHILDREN'S MEMORIAL HOSPITAL

We have kept on hand two or three wet-nurses at a time. They come from the Salvation Army headquarters. Each nurse brings her own baby; both mother and baby are examined before engagement, the examination of the mother including a Wassermann test. The nurse is paid $30 per month, room and board, and in addition to her duties as foster mother, does general work about the hospital.

The mother nurses her own baby every four hours, usually on one breast. The other breast is pumped the alternate four hours, the mammae thus being stimulated to activity every two hours. The milk is fed by bottle to the ward babies, none of the latter being put to the breast for fear of infecting the woman, for example, with a latent syphilis. This method has the further advantage of allowing us to feed definite amounts of breast milk to a given baby. Except for the prematures, few of the babies receive exclusively breast milk, but are on "mixed" feeding—part human milk, part bovine milk. The feedings of the latter are gradually increased as the infant improves preparatory to sending it home on a simple milk formula. As a rule the milk from all nurses is mixed and fed thus to the ward babies; in some cases, however, babies with a particularly weak digestion receive the milk from a single nurse, which milk analysis has shown to be a "poor" milk; or such a baby is given the "foremilk." In several instances one of these proceedings has seemed to improve a faulty digestion.

The amount of breast milk furnished by each nurse of course varies in the different women. During the first few days they each average 8 to 10 ounces daily in addition to that given their own babies. This increases quite rapidly under the use of proper hygiene and the two hourly stimulation of the breasts, until the maximum is reached, this maximum ranging from 16 to 60 ounces per day. We do not consider a wet-nurse a good one unless she furnishes at least a pint of milk daily for the ward babies.

The average "life" of a wet-nurse has been nine to ten months; the maximum has been thirteen months. They come to us when their own babies are about a month old.

It is evident that, by the method thus briefly outlined, many babies can receive a certain amount of breast milk daily, especially as most of these infants, below par, with a correspondingly weak digestive capacity, can take only small amounts at a feeding. We averaged, for example, during the year 1913, 58 ounces of breast milk per day; with feedings averaging in amounts 2 to 3 ounces, twenty to thirty feedings of breast milk are available, enabling us to give three to four feedings to each one of eight or ten babies daily.

---

* Chairman's address, read before the Section on Diseases of Children at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

RESULTS

What results have been obtained by this method of treatment of our hospital infants? Have those fed on breast milk done better than those fed on some modification of cow's milk? Has the infant mortality of the hospital decreased since the systematic use of breast milk was begun? To determine these points, I have studied the records of a large number of babies treated at the hospital during the last three years. The records have been divided into two parts, the first consisting of all babies fed on breast milk either exclusively or in combination with some modification of cow's milk; the second, of all babies fed on some modification of cow's milk alone.

The total number of cases studied is 715, of which 165 fall into the breast-fed and 550 into the cow's milk group. They range in age from 1 day to 1 year, in weight from 5 to 20 pounds. They include the types of cases usually seen in an infants' hospital, of varying degrees of severity, from mild cases of disturbed feeding to severe types of ileocolitis and severe degrees of "intoxication." The mortality among the 715 cases as a whole is 36.7 per cent.; among the breast-fed babies, Group 1, it is 36.3 per cent., among the cow's milk fed babies, Group 2, it is 36.9 per cent. Thus the mortality in both groups is practically the same.

MORTALITY IN GROUPS 1 AND 2

All members of Group 1 received as part of their diet a food universally acknowledged to be the best for infants. The members of Group 2, on the contrary, received no such food and were, to this extent, handicapped in the race for life. Yet even with this handicap in a matter of such vital importance, the group loses no more cases in proportion than does Group 1. What is the reason? Obviously the members of the second group must possess some advantage of their own to offset that enjoyed by Group 1 in the matter of diet. This advantage must consist either in some superiority of general management or in some condition of physique indicative of greater vigor and vitality.

The general management was the same in both groups: the cow's milk group did not enjoy the advantage, for example, of living in private homes. All the members of both groups lived (or died) in the same hospital, attended by the same physicians and nurses, exposed to the same atmosphere, to the same communicable diseases; in all respects the general environment was the same for both groups. Any advantage enjoyed by Group 2 could not, therefore, consist in its management. It must consist rather in some physical condition of members of the group, by virtue of which they possessed greater resisting power to disease.

The best index to the vigor and resisting power of an infant is his weight at a given age. In order to compare the vigor and physical condition of the two groups, therefore, the average weight and age on admission were determined, with the following results:

Average weight of 165 infants in Group 1 was 7.6 pounds
Average weight of 503 infants in Group 2 was 9.3 pounds
Average age of 165 infants in Group 1 was 3.8 months
Average age of 503 infants in Group 2 was 5.3 months

Thus it appears that the members of Group 2 were, on an average, 1¾ pounds heavier and 1½ months older, than those of Group 1; and in this superiority of weight and age lies the advantage possessed by the former group, and the explanation of its relatively low mortality.

We are discussing, however, not primarily the effect of physique and natural vigor on infant mortality, but the effect of one kind of feeding on this mortality as compared with another kind.

Obviously the comparative value of two methods of feeding cannot be gauged by applying these two methods to groups of infants with different degrees of vigor. Such values can be determined only by carrying out the two methods on groups of infants of equal vigor and living under the same conditions of general hygiene. In order to do this in the present study, the following plan was pursued.

It was observed that the weight of the great majority of the infants in Group 1 fell within the limits of 6 and 9 pounds. From Group 2 were now selected all the cases ranging in weight between 6 and 9 pounds, and the average weight determined. They constitute Group 2a. They numbered 234, of whom 131 recovered and 103 died. They averaged in weight 7.7 pounds, in age 3.9 months, the averages, it will be noted, of Group 1. To test the relative influence of breast milk and cow's milk in their effect on mortality, we now compared the death-rate of Group 1 with the death-rate of Group 2a, both groups consisting of babies approximately equal in vigor and resisting power but receiving different foods. The mortality rate of Group 2a was determined and found to be 44 per cent.[1] as compared with 36 per cent. in Group 1.

Thus of two groups of infants equal in weight and age, living under identically the same hygienic conditions, the one group receiving *some* breast milk, the second group *none*, a larger proportion of those receiving breast milk survive. It seems reasonable to attribute the lower mortality of this group to the breast milk received.

But while these figures are in favor of breast milk, as was to be expected, the difference is by no means striking, only 8 per cent., and the mortality of the favored group still remains high. There are two possible explanations for this continued high death-rate: the desperate nature of the cases involved; indiscriminate use of a limited supply of breast milk.

The serious condition of hospital infants on admission has already been mentioned. Many come in practically moribund, improve under no treatment at present known to us, sink steadily and die. Such are many of the cases of "intoxication" with or without some complication, for example, bronchopneumonia. The manipulation of proteins yesterday, of fats to-day, of sugar and salts to-morrow, does not save these babies. At present they are out of our reach. We have much yet to learn as to their proper management. To some of these we have fed breast milk whole, skimmed, diluted; to some, modified cow's milk, using the term "modified" in its proper comprehensive sense to include any modification or manipulation of cow's milk, whether it be a simple dilution of whole milk, or the complicated *"Eiweissmilch"* with or without the addition of maltose. It is not at all improbable that breast milk is not the proper food for many of these babies; it is entirely within reason to believe that some combination of water, fat, protein, sugar and salts other than that present in any breast milk will be found to be better adapted to the conditions existing in these infants. At present, however, we must frankly accept and face our ignorance concerning them. In spite of human endeavor they raise the infantile death-rate.

---

[1] Recoveries 131; deaths 103.

Consideration of the second point, the proper distribution of a limited supply of breast milk, presents a more hopeful outlook. It is generally believed that the giving of one or two feedings of breast milk to a bottle-baby during the twenty-four hours is beneficial and enables that baby to digest and assimilate higher percentages of the ingredients of cow's milk than he could do without this human milk. As far as healthy infants are concerned, this is undoubtedly true. To what extent this applies to sick infants, I have sought to learn from further study of the present cases.

The records of the breast-fed group have now been regrouped into three subdivisions, A, B and C: those receiving exclusively breast milk, those receiving at least half breast milk for a limited critical period, those receiving less than half breast milk for such a period. The mortality-rate has been estimated in each of these subdivisions, giving the following results:

A. Of 17 infants exclusively on breast milk, 10 died; mortality, 59 per cent.

B. Of 62 infants on at least half breast milk, 2 died; mortality, 3 per cent.

C. Of 58 infants on less than half breast milk, 29 died; mortality, 50 per cent.

Division A consists of desperate cases. We assumed, rightly or wrongly, that breast milk would give them the best chance for life; hence their diets consisted exclusively of breast milk. How unsuccessful we were the high mortality shows.

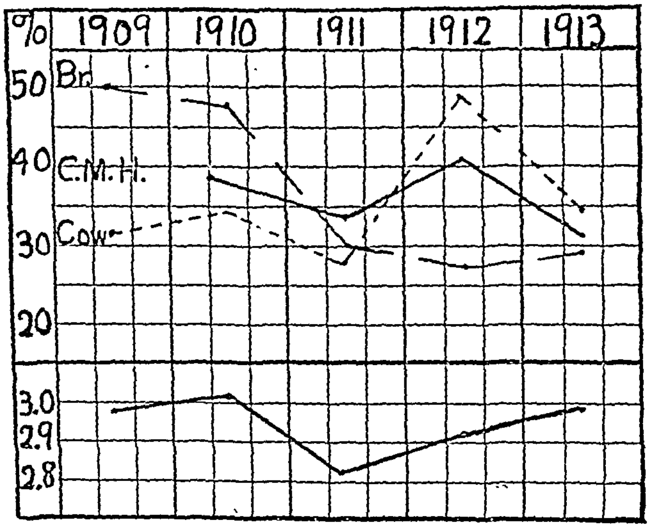


Chart showing infant mortality rates for the years 1909 to 1913, inclusive: Above, the solid black line shows the general hospital infant mortality; the broken line the rate among breast-fed infants; the dash line the rate among infants fed on cow's milk.

Below, the curve shows the deaths in the city of Chicago among infants 1 year old or under per thousand of population for the corresponding years.

The infants in division B seemed less serious, as a whole, than those in A, but more serious than those in C. They were accordingly given, not exclusively breast milk, but comparatively large amounts, to tide them over a critical period. The change for the better and the upward progress of most of these infants took place coincidently with the change to, and administration of, breast milk, and I believe the low mortality among them to be due to the considerable amounts of this milk received.

The infants in division C seemed somewhat less serious than those in either A or B; accordingly they received less breast milk and had a high mortality rate, half of them dying.

The high mortality in division A emphasizes the fact that human milk is not a panacea for all the ills of infancy, but in many cases is of no avail. Intensive study of such cases, by clinical and laboratory methods, will probably show that some combination of water and solids other than that found in breast milk is better adapted to correct the chemicophysical condition in which these infants enter the hospital.

The low and high mortality of divisions B and C, respectively, is significant: the one group received breast milk in abundance and suffered a mortality of only 3 per cent.; the other was "skimped" on breast milk and half died. The lesson is obvious.

MORTALITY BY YEARS

We have seen that the mortality rate of a group of babies fed partly on breast milk and partly on cow's milk is somewhat lower than that of a group of equal vigor fed on cow's milk alone, the investigation covering a period of three years. What has been the effect on the hospital infant death-rate as a whole? Is this lower on an average than it was before breast milk was used so extensively? Is the number of recoveries among the breast-fed babies sufficiently large to influence the general mortality?

The hospital infant mortality-rate as a whole has been ascertained for the years 1910 to 1913, inclusive; the mortality-rate in Groups 1 and 2 has been estimated yearly; finally, as an infant's hospital is apt to reflect in the severity of its cases, the severity of the same diseases prevailing in the community at large, figures of the infantile death-rate in Chicago, during the same period, are introduced for purposes of comparison. Curves have then been plotted, based on these figures in the accompanying chart.

Analysis of the curves as a whole is interesting. All show a drop from 1910 to 1911, the hospital curves reflecting the general drop seen in the city curve; from 1911 to 1912 there is a sharp rise in the cow-milk group, carrying up the general hospital rate, a reflection again of the increased city mortality; from 1912 to 1913 we see a marked drop in the cow-milk group, carrying down the general hospital rate, in spite of a continued rise in the city at large.

In the breast-milk curve, the high figures seen in 1909 and 1910 have already been explained. They are due to the scanty, irregular use of breast milk. They are of little significance but serve as a background and contrast to the marked decrease in the following two years, during which breast milk was used extensively. Especially interesting is the drop in 1912 coincidently with the rise in all the other curves, both of hospital and of city. Notwithstanding a season of severe intestinal troubles, we were able to save an increased number of babies taking breast milk, while the number of deaths of those taking cow's milk markedly increased, from 27 per cent. to 48 per cent.

There is a rise in the curve in 1913; it is, however, slight, only 2 per cent., and may well be due to the presence of an unusual number of well nigh hopeless cases, there being on the list two cases of pyloric stenosis, one of erysipelas and ten of bronchopneumonia in a total of fifty-seven cases for the year.

In the curve based on the hospital infant mortality as a whole, we see that the mortality for 1910, before the extensive use of breast milk, was 36 per cent., and that it was 33 per cent., 42 per cent. and 32 per cent. for 1911, 1912 and 1913, respectively. Two of these last three years thus show a decreased death-rate, but in the third year, 1912, the rate was so high that the average for the whole period was 35.6 per cent., practically the same as in 1910, before the extensive use of breast milk was begun. Thus the average general rate has not been lowered by the use of breast milk. We have undoubtedly saved lives by its use, but not in numbers sufficient to lower the general infant death-rate. The time covered by the study, however, three years, is too short to warrant final conclusions and the figures are introduced only as a preliminary report.

DURATION AND COMPLICATIONS

One of the unfortunate factors in the management of hospital babies and one contributing largely to the high mortality is their prolonged stay in hospital. It seemed desirable in the present study to ascertain whether or not the breast-fed babies made more rapid progress than the others; whether or not, also, they were less apt to contract communicable disease. Accordingly Groups 1 and 2a were analyzed from these points of view. The average length of stay of all recoveries was estimated, likewise the number of complications among both the recoveries and the fatal cases. The results are as follows:

Average stay of Group 1 was 54 days
Average stay of Group 2a was 34 days
37 per cent. of Group 1 developed complications
24 per cent. of Group 2a developed complications

The more protracted stay of the breast-fed infants is striking. The greater proportion of complications among them follows as a natural result of this long stay; of the sixty-two cases with complications, only six had a complication on admission. Furthermore, the complications are more fatal among the breast-fed infants, 37 per cent. of these dying, as compared with 27 per cent. in the other group.

It is probable that in our desire to give the babies every possible chance we have kept them on breast milk too long, thereby delaying their discharge from the hospital. It apparently has not been possible to furnish them breast milk at home, and they have stayed until they have been "switched" to an exclusively cow-milk diet on which they could be sent home.

The problem is difficult, though not insurmountable. On the one hand is the necessity of feeding to a weak baby the food which in all probability will give him the best chance for life; namely, breast milk. On the other hand is the continued exposure to communicable disease—exposure of a baby with an already lowered resisting power. The solution of the problem lies in the earlier discharge from hospital and the continued use of breast milk from the hospital wet-nurse, oversight of the patient at home being continued through the out-patient and social service departments.

CONCLUSIONS

Comparative study of two groups of infants of unequal age and weight, the older and heavier group fed exclusively on cow's milk, the lighter and younger group on part human and part bovine milk, shows that the mortality-rate in both groups is the same.

Study of two groups of the same age and weight, fed as above, shows a mortality lower by 8 per cent. in the group fed partly on breast milk.

Infants seriously but not hopelessly ill, whose diet consisted of at least half breast milk over a critical period, show a mortality of but 3 per cent.

Infants somewhat less seriously sick, whose diet consisted of less than half breast milk, over a similar period show a mortality of 50 per cent.

Whenever possible, therefore, the diet of such seriously ill babies should consist of at least half breast milk throughout the critical period of their illness.

The use of a limited supply of breast milk in a large infant hospital, over a period of three years, has not reduced the infant mortality of that hospital during that period. The mortality, however, has not risen, notwithstanding the fact that during the same period there has been a steadily rising infant mortality in the city in which the hospital is located and from the infant population of which the hospital draws its patients.

Breast milk is not a panacea for all the ills of infancy, desperately ill infants showing a high mortality even when fed exclusively this kind of food.

URINARY ANALYSIS IN THE DIAGNOSIS AND TREATMENT OF DISEASES OF INFANCY AND CHILDHOOD *

ROWLAND GODFREY FREEMAN, M.D.
NEW YORK

It is the design of this paper to point out the importance of fairly complete urinary examinations in disorders of infancy and the value of certain tests infrequently made which may furnish important information. The urinary analysis recommended may be run through in ten or fifteen minutes by a competent man in any properly equipped laboratory.

I am aware, of course, of the ordinary office examinations of busy physicians, the tests for albumin and for sugar, and also of the fact that commercial laboratories are used by many physicians to obtain more complete examinations without trouble to the physician himself. But it is not often that office examinations or laboratory examinations supply the physician with the most important facts to be elicited from the urine in the diagnosis of diseases of infancy and childhood, while in the case of infants where the procuring of a specimen is difficult, urinary analysis is often completely neglected. This neglect is in sharp contrast to the frequency of blood examinations in such cases, blood being readily procured by a prick.

The examination of a specimen of urine in a child acutely sick, especially if the diagnosis is obscure, is usually much more important than an examination of the blood or any other examination excepting the general physical examination by the physician.

The obtaining of a specimen of urine, while often difficult, especially in female children, is not really so difficult as is generally supposed. One difficulty is that infants pass a little urine very often. Accurate obser-

---

* Read before the Section on Diseases of Children at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

vations on the urination of infants have recently been made by Engle[1] who placed an infant over a receptacle for the urine so arranged that an electric current was formed which rang a bell whenever the child moistened the receptacle with urine. He found that an average infant taking about 800 c.c. (27 ounces) of food urinates from twenty-five to thirty times in twenty-four hours, or oftener than once an hour, and when the food was increased to 1,600 c.c. (54 ounces) the child would urinate from fifty to sixty times or more in twenty-four hours; that is, every twenty or thirty minutes. He also found that a young infant voided urine at regular intervals whether awake or asleep, while after 6 months of age they usually urinate only while awake.

While cribs have been made with receptacles for saving all the urine, for ordinary clinical purposes this is not necessary. In a male infant a bottle with a mouth sufficiently large for the insertion of the penis may be fastened to the child with plaster with full assurance that a specimen will be obtained within an hour if the child is awake. In a female infant the procuring of a specimen is more difficult, but a small cup placed under the infant whenever she wakes with a dry diaper, especially if pressure is made over the bladder, which at this age is an abdominal organ, will usually procure a specimen. If it does not, the next opportunity will be when a bottle is given, for during the time when a baby sucks at a bottle urine is apt to be excreted. In cases of pyelitis in female infants I have had no trouble, where there has been intelligent supervision, in securing several specimens a day without the use of any apparatus.

Of the conditions to be looked for in the urine we may note in order:

1. Dilution
2. Evidences of nephritis
3. Evidences of diabetes
4. Evidences of acidity
5. Evidences of acidosis
6. Evidences of intestinal intoxication
7. Evidences of pyelitis

But it is the acidosis, intestinal intoxication and pyelitis that I wish to emphasize, these being the important conditions to be constantly looked for in the disorders of childhood.

URINALYSIS

Before considering these abnormal conditions found in the urine of children I will review briefly the sort of urinalysis which I believe is essential to the intelligent diagnosis and treatment of disorders of children. This analysis, when the materials are ready, may be run through in a few moments.

The specific gravity is taken in the ordinary way with a urinometer.

A qualitative reaction may be obtained by the use of litmus paper, but for a quantitative reaction, which is quite important in treatment, a more accurate test with phenolphthalein is of advantage. For this purpose a phenolphthalein solution, a buret containing a decinormal sodium solution and a few grains of potassium oxalate are necessary. Twenty-five cubic centimeters of urine and a few grains of potassium oxalate are put into a test-tube and shaken. Two drops of phenolphthalein solution are added, and then drop by drop the normal sodium solution until the reaction occurs which is read off in cubic centimeters on the buret.

Albumin may be detected by the use of strong nitrate acid in cold urine or by boiling the urine and adding a few drops of acetic acid.

Glucose is detected by Fehling's solution, and if positive, is confirmed by a fermentation test with yeast.

To obtain acetone the urine is shaken up with a few drops of a freshly prepared sodium-nitroprussid solution. To this 2 c.c. of glacial acetic acid are added and over this a layer of 10 per cent. ammonia water. After standing three minutes a red ring indicates the presence of acetone.

For diacetic acid a 10 per cent. ferric chlorid solution is added to 5 c.c. of urine until the mixture clears. A Burgundy red-color indicates diacetic acid, the amount varying with the saturation of the color.

For indican, to 5 c.c. of urine 5 c.c. of strong hydrochloric acid are added. To this a drop of sodium hypochlorite solution and a few drops of chloroform are added. The test tube is inverted five or six times and allowed to stand for five minutes. A violet color indicates indican, while a red color indicates potassium iodid.

For phenol 5 c.c. of Millon's reagent are added to 1 c.c. of urine. This is boiled and a salmon pink color indicates the presence of phenol.

These tests are only a few readily made tests to indicate certain conditions. Acetone and diacetic acid are only two of the products of acidosis. Beta-oxybutyric acid, a third and earlier form of acidosis, is more difficult to test for and of less consequence.

Other substances that give evidence of intestinal intoxication likewise may be tested for, but these two, indican and phenol, are good representatives of the class and give one readily an indication of what one is dealing with, and I believe that these tests together with the test for bile, if necessary, and thorough microscopic examination of the sediment are all that are necessary for routine work.

The dilution of urine is indicated by its specific gravity. The specific gravity of the urine may give one a good clew to the amount of fluid taken, and while in those who are largely on a fluid diet the specific gravity is low, it is not uncommon in children of 3 or 4 years of age to find a very high specific gravity, and these children are usually those who take very little milk or other fluid.

ALBUMIN

The presence of albumin in the urine of children who have general disorders is not, to my mind, a necessary source of concern. Traces of albumin are very frequently found and unless this albumin occurs in a child with a nephritic history or is associated with or preceded by acute nephritic disorder, one may assume that it will disappear with an amelioration in the general condition of the child. The same may be said of hyaline casts in the urine, which in some children will occur in large numbers, and sometimes without the presence of albumin, and these casts may not signify any grave disorder.

Sugar is rarely found in the urine of children even in cases of marked acidoses. If it is found the possibility of a physiologic glycosuria due to overindulgence in sugar should be borne in mind, but the persistence of sugar in a normally fed child is one of the gravest indications, diabetes in these young patients being almost universally fatal.

---

[1] Engle: Rev. in Therap. Monatsch., 1912, xxvi, No. 5, p. 318.

Intense acidity of the urine unaccompanied by the products which we call an acidosis may produce such symptoms as intertrigo and frequent micturition, which are readily relieved by a neutralization of the urine by the internal administration of alkalies.

ACIDOSES

To attempt to give a review of the theories of the cause and significance of acidoses would take more time than we have, and would not lead us probably to any definite conclusions. Acidoses have been mostly studied as they occur during the disturbances of pregnancy, particularly as they occur in diabetes, in acute yellow atrophy of the liver and after chloroform anesthesia.

All this literature, however, we will lay aside to consider the association of acidoses in the common ailments in children and their treatment.

By acidosis I mean a condition associated with a considerable amount of acetone and diacetic acid in the urine. In any urine that is very markedly acid in children the presence of these substances should be suspected and looked for. A fairly regular accompaniment of these attacks of acidoses is the flavor of acetone in the breath of the child, and on this alone a diagnosis can often be made. Acetone may, however, occur in the urine unaccompanied by acetone breath, and acetone and diacetic acid may be present in a urine that gives an alkaline reaction. An acidosis occurring in very early life is that found in breast fed babies who are taking and retaining more breast milk than they can properly digest. They have frequent movements that are markedly acid. They become irritated under the diaper and if the food is not cut down will soon break out in an acute general eczema. In such cases the remedy is easy of application. By weighing before and after nursing one may ascertain the amount of milk the child is getting at each nursing, and this is often 5 to 6 ounces in a child 6 weeks old, and when the breast feeding is cut down to a suitable amount the eczema rapidly disappears and the child recovers.

Almost all intertrigo in babies is caused by an acid urine and this may be associated with the presence of acetone and diacetic acid. This condition is most successfully combated by a neutralization of the urine in addition to the use of external applications. In neutralizing the urine care must be taken that it is not made strongly alkaline, for I believe it may then be as irritating as before.

Most of the attacks of vomiting in children are accompaniments of acidoses, excepting those caused by an overloaded stomach, while in persistent attacks of vomiting the condition of acidosis is usually very marked. Those cases known as cyclic vomiting, where children from 3 to 10 years of age have repeated attacks of vomiting with a markedly acetone breath which last for a number of days, while not necessarily due entirely to acidosis—for in these cases there is a large nervous element—are usually preceded and accompanied by acidoses and are best treated by alkalies and elimination. These attacks are best controlled by excluding nervous irritation, by watching the tongue of the child and on the slightest indication of a recurrence of an attack, putting it to bed, relaxing it with a warm bath, and administering alkalies and laxatives. By these methods, promptly and vigorously applied, the habit of recurring attacks may best be broken.

INTESTINAL INTOXICATION

In addition to these attacks of acidoses we have another class of cases called intestinal intoxication which may or may not be associated with acidoses. Attacks of intestinal intoxication are characterized by the presence of indican and phenol in the urine. Such attacks are common in young children and an appreciation of their nature is an aid in intelligent treatment. One of the earliest accompaniments of this condition is seen in marasmic babies during the first months of life, who after a stationary weight or a gradual loss in weight, show in one day a gain of from ½ to ¾ pound, and on examination it is found that there is an edema of the hands and feet or of the face. These are usually severe cases and often terminate fatally, and this edema is often associated with intestinal intoxication, while the stimulating cause may be the administration of too much sodium chlorid.

Another group of cases are those that have urticaria with localized edema. It is not very uncommon that a child who has been doing pretty well, except possibly for a coated tongue, is found one morning with one eye entirely closed from swelling. He has little or no fever, is less active than usual, and may have no other swelling, but sooner or later other evidences of urticaria appear. If with these attacks the child vomits, we usually find an acidosis associated with the intestinal intoxication. Examination of the urine in these cases is very important in eliminating a diagnosis of a much more serious condition. As these children improve under treatment the evidences of acidosis and intestinal intoxication disappear.

The eczema of childhood which is often resistant to the treatment administered is usually curable if the food is carefully regulated on a basis of required calories, the intestinal intoxication eliminated and the surface kept well covered with appropriate ointment. The treatment of these intestinal intoxication cases is very similar to that used in acidoses—free elimination from the intestinal tract and the administration of alkalies. In the administration of alkalies, however, both in acidoses and in intestinal toxemias, careful control of the reaction of the urine must be had by the use of litmus paper or phenolphthalein, so that when a neutral or slightly alkaline reaction is reached the alkalies may be reduced in dose or discontinued. The alkalies that are most valuable for this purpose, as being in no way irritating and well taken by children, are the bicarbonate and citrate of soda, while milk of magnesia, which is strongly alkaline, makes a good laxative to use in combination with the bicarbonate and citrate of soda. Lacto-bacillary cultures may also be administered with benefit in cases with offensive stools, or with abdominal distention from gas formation.

The growing pains of children are often associated with acidoses and intestinal intoxications and may be relieved by treatment which rectifies these irregularities.

PYELITIS

The third condition in the urine which should be carefully looked for in every case of unexplained fever is pyelitis. Cases of pyelitis, many of which are readily curable, are more commonly allowed to run on unrecognized than any other disease of infancy, not excepting otitis and scurvy; for pyelitis may give no evident clew to diagnosis unless the urine is examined.

The laboratory diagnosis is made by finding in the precipitate of a centrifugalized specimen of urine a material number of leukocytes. One or two leukocytes in a D-field (Zeiss) of precipitate of a female baby does not indicate a pyelitis, but only the washing from the vulva. That number, however, in a male baby or more in a female baby should render the diagnosis suspicious, and then other specimens obtained so as to avoid contamination should be examined for both leukocytes and bacteria.

A clean sample may be obtained by using a bottle and cork that have been in boiling water, by rinsing the chamber with boiling water and washing thoroughly the urethral orifice in a male baby and the urethral orifice and vulva in the female. With these precautions taken one usually obtains almost a pure culture of the infecting organism. Or in pyelitis cases the specimen may be obtained by a sterile catheter into a boiled bottle or sterilized test-tube.

The pyelitis of infancy is an acute infection which may or may not be accompanied by fever, but which, in any event, should be promptly cured, for cases that have not been cured and have gone on to a fatal termination have shown suppurative processes in the kidney tissue. The diagnosis of pyelitis is often fairly sure before the urinary examination is made, if one is accustomed to the type of symptoms that accompany it. The temperature is usually of a marked remittent type and in severe cases is apt to reach more than 105 F. and sometimes 106 F. It occurs usually in children near the end of the first year, and far more often in female children than in male. On this account pediatricians are apt to feel that the infection has come from the outside through the smearing of the colon-bearing stools over the buttocks of the child, thus reaching the vulva, and the infection traveling up the urethra. The inside infection through the lymphatics is, of course, possible, and may frequently occur, but the greater incidence of pyelitis in female children can best be explained on the theory of external contamination. This likelihood of external contamination is one of the strongest arguments for the early control of defecation in children. Children with intelligent nurses may be trained by the aid of glycerin suppositories to have a morning movement in a bowl when not more than 2 or 3 months old. The formation of such a habit in early life should not be neglected.

Pyelitis is likely to be preceded by a disturbance of the bowels, usually not an acute colitis, but a condition in which the movements are a little green and perhaps slightly more numerous than normal. The attack of pyelitis is usually ushered in by a slight rise of temperature, which most often quickly subsides on the administration of sufficient alkalies to neutralize the urine, and many authorities believe that this administration of alkalies should be the main reliance in pyelitis.

Although cases of pyelitis are almost all colon infections, the reaction to treatment varies materially, and while most children are cured by neutralization of the urine by alkalies, there remain many children in whom this treatment has apparently no effect, and for these cases other methods of treatment must be sought. Perhaps the best treatment in many cases for the cure of the constitutional symptoms is the administration of colon vaccines which produce a reduction in the temperature; but so far as I know, the vaccines do not cure the disease, though they apparently cure it. The child loses its fever and will increase in weight and seem perfectly well, but when the urine is examined one finds the same pus and bacteria that existed before. We fortunately have now the first internal antiseptic that has ever proved efficient for any part of the body, and hexamethylenamin is certainly an absolute antiseptic for certain infections of the urinary tract. It, however, is a drug that should be given with care to infants:

I have seen marked cyanosis follow the administration of one-half grain of hexamethylenamin in a child 8 months old, and a similar attack follow the second administration of the same dose. So in no infant should doses be begun of more than ½ grain; but if the infant and its urine can be carefully watched and no reaction follows the administration of ½ grain, the dose can be rapidly increased. I have, however, administered a dram a day of hexamethylenamin to two babies of 6 months with colon cystitis and acid urine, neither weighing more than 12 pounds, without causing any evident irritation of the kidneys and without curing the cystitis. Such large doses if given should be continued only a few days, during which time the child and its urine should be under close daily observation for evidences of kidney irritation.

CONCLUSIONS

In every urinary analysis in children, whether with fever or without, careful tests for acidity, for acidosis and intestinal intoxication should be made, and also an accurate computation of the number of leukocytes present. Should these leukocytes be constantly present in any considerably increased amount an examination for bacteria in a fresh specimen procured in such a manner as to avoid contamination or drawn by a catheter, should be made and if present should be grown on culture media for identification. By neglecting to make these tests many failures to properly diagnose and promptly cure disorders in childhood may occur.

211 West Fifty-Seventh Street.

ABSTRACT OF DISCUSSION

Dr. J. P. Sedgwick, Minneapolis: At the St. Louis meeting of this section I was able to report that in recurrent vomiting we have a greatly increased amount of creatin and creatinin, especially creatinin. At Chicago a year or two later I was able to show that increased creatin and creatinin excretion accompanies the attack. In the meantime Mellanby had reported that the creatin and creatinin excretion and acidosis increase with attacks of recurrent vomiting. It has been shown by physiologists that acidosis is produced and occurs with the withdrawal of food, especially with the withdrawal of carbohydrates, and creatin and creatinin excretion also increase under the same conditions. I think we should be careful not to mistake the acidosis for the cause or the fundamental part of recurrent vomiting, when we do know that the withdrawal of food, especially carbohydrates, or an increase in the amount of fat ingested, will produce these acids. I think many have made the mistake of considering the effect to be the cause. Based on the fact that infections of the urinary tract occur more frequently in female children, we think it must be due to infection through the urethra. We have not been able to find any experimental proof. Dr. Huenekens worked with me, trying to cause ascending infection in guinea-pigs, but we were not able to accomplish it.

Dr. S. M. Hamill, Philadelphia: Will Dr. Sedgwick say what relation creatin and creatinin bear to these attacks? Is elimination increased before the attack? In other words, is it a premonitory symptom?

Dr. Sedgwick: Mellanby's report shows that he found an increase of creatin and creatinin as well as acidosis just before the attack. I reported one case in which a child having repeated attacks of recurrent vomiting, also had fever and appeared to be coming down with an attack of recurrent vomiting, and creatin and creatinin did increase without the typical vomiting. In many cases when we had recurrent vomiting, I did not get much increase in creatin and creatinin before vomiting. Of course acidosis and acid bodies come up at the same time—I believe in many cases owing to the withdrawal of carbohydrates.

Dr. Joseph I. Linde, New Haven, Conn.: It is important to get complete specimens of urine, or at least several specimens during the day. Pus is not present in all specimens during the day, and if several specimens are not examined one may easily fail on the diagnosis.

Dr. Henry F. Helmholz, Chicago: I wish to emphasize a point made by Dr. Linde, not only to take several specimens on one day, but specimens for several days running, especially in those chronic cases, in which one may find no pus for several days. In recurring cases, in which the symptoms are indefinite, one sometimes gets a sudden gush of pus after practically negative urinary examinations covering a period of several days. With regard to the finding of albumin in the urine in older children, one case is well recognized, namely, orthostatic albuminuria, which should be considered, because, by means of exercises, this condition can be cured. Whether or not it is of any great harm to the child to be excreting albumin, is not for me to decide. In this well-defined group of orthostatic albuminuria we have an explanation of why the child is passing albumin. Dr. Freeman called attention to overfeeding; it seems to me just as important to recognize cases of acidoses caused by underfeeding. As Dr. Sedgwick has said, the withdrawal of carbohydrates gives rise to this condition, and in children who are underfed a very good indication of this is the presence of diacetic acid in the urine.

Dr. W. W. Butterworth, New Orleans: If, through Dr. Freeman's paper the attention of the general practitioner can be called to the great need of examining the urine of infants and children more frequently than is generally done, we will have accomplished a great deal. It is easy to secure a specimen of urine from infants—especially female infants. Apart from albumin and sugar examination, the test for indican, acetone bodies and the presence of pus is important. Another thing which should be mentioned is the frequency of pyelitis occurring in boys as well as in girls. At the last meeting of the International Medical Association, Dr. Thompson of Edinburgh reported twenty-seven cases of pyelitis occurring in boys. I, as well as others, had lost sight of the fact that it occurs more frequently in girls than boys. My fatalities have occurred in boys instead of girls. Just why is not clear to me. I believe we are apt to overestimate the importance of acetone and diacetic bodies in the urine. Almost any febrile disturbance will cause their presence. The simple finding of them does not mean acidosis.

Dr. Henry Heiman, New York: First in importance is the examination of the urine at various times. In orthostatic albuminuria, if we examine the first specimen before the patient is out of bed, we will find it negative. As soon as he is up and around the albuminuria will be present. We know this is probably due to pressure on the venous system of the kidneys. It is better to take morning and evening specimens in cases of suspected orthostatic albuminuria. In infectious diseases, when we examine the first twenty-four-hour specimen we find it as a rule containing albumin, but we all know that real nephritis occurs later, as in the third week in scarlet fever. With regard to obtaining urine in children, I have been fairly successful with Dr. Chapin's receptacle. In females I never hesitate to catheterize when necessary with a small ureteral catheter. This is thoroughly sterilized, of course. There is no difficulty in obtaining urine. With regard to types of pyelitis, we all believe we have ascending, descending and transparietal types. My experience has been that they are much more frequent, in New York, in females than in males. We should state specifically with what type of pyelitis we are dealing. The majority are due to the *Bacillus coli communis*. I have one case in the hospital of the pyocyaneus type. I believe the majority are of the ascending type. The colon bacillus has been found in the blood, but in rare instances. With regard to the treatment of these patients, I must say if they do not get well in ten or twelve days with or without urotropin, they become chronic. The Germans believe, in such cases as have been mentioned, in which there is free urine for several days and a relapse, that it is due to punctate abscesses in the cortex of the kidney. For the diagnosis of these cases Dr. Edwin Beer has given an excellent test—methylene blue. For a few days the urine will be green, then it becomes normal, then when an abscess bursts, it will be green again. This test is a very useful one.

Dr. Kate C. Meade, Middletown, Conn.: Is it possible, by regulating the urine, to control the eczema which these children sometimes have?

Dr. R. G. Freeman, New York: A variation in the amount of pus in the urine at different times in the day does of course occur. As to using the urine from a squeezed diaper, that is better than nothing, but one never knows what the diaper may contain, and what it does contain will appear in the urine. It is perfectly simple to obtain a specimen in a clean vessel in all cases. I think modifying the urine aids much, but diet is the main factor in eczema.

AMEBIC DYSENTERY IN CHILDREN*

L. R. DeBUYS, M.D.
Assistant Professor Diseases of Children, Tulane University of Louisiana
NEW ORLEANS

Amebic dysentery is a relatively rare disease in children, not because children are not susceptible to the infection but because they are less exposed to the etiologic factors which cause the infection in the adult. It is possible that in children it may exist much more often than is believed but may escape detection. The four cases reported below are instances of this.

In the Charity Hospital in New Orleans where there have been seen in the out-patient department for the last eight and a half years an average of 20,543 new cases annually, and where there have been admitted annually an average of 11,077 cases, or where 94,161 cases have been admitted, only 313 were cases of amebic dysentery, and of these four occurred in children under 12 years. Two of these were in my service.

At the Touro Infirmary in my service in over 3,000 children there were four cases of amebic dysentery. Two of these children were admitted to the Charity Hospital, because the Touro beds were filled, and are included in the four cases in the Charity Hospital. Besides my four cases at the Touro Infirmary there were two others, making a total of six cases at this institution.

Of the eight cases, one, after the condition was diagnosed, deserted.

Amebic dysentery is more prevalent in the male than in the female, due, it is generally believed, to the more active life of the male with the incident greater exposure; and so it might be argued, the lesser exposure may hold good for the relative infrequency in children. The younger the child the less often is the disease found. This is in accord with our belief of the sources of infection, more particularly water and green vegetables, as the smaller babies have boiled water, as a rule, and do not yet have vegetables. As they grow older the exposure, and consequent liability to infection is greater.

The symptoms of amebic dysentery in children do not differ from those in the adult. The abdominal pain, the frequent stools containing mucus, blood and, at times pus, the tenesmus, anorexia, indigestion, anemia, emaciation and low temperature, loss of weight, flabbiness of muscles, dry skin and sallow complexion are more or less constantly found, depending on the severity of the disease. The blood picture is one of secondary anemia.

---

* Read before the Section on Diseases of Children at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

The diagnosis is not difficult to make if a microscopic examination of the warm, liquid stool, free from urine, is made; or better still, if a rectal tube is passed and the bloody mucus or small pieces of necrotic tissue thereon are examined on warm slides. The ameba will be most readily found in this way. The condition from which amebic dysentery is to be differentiated in children is bacillary dysentery. In the latter condition the onset is usually more acute, temperature higher, systemic disturbance greater, the child is more toxic and less sallow, and the agglutination test *may be positive, and the dysentery bacilli but no* amebas are found in the stools. The facies in the two dysenteries are different and characteristic in each.

TABLE 1.—DATA IN CASE 2*

Dat 1913	Temp. Min. and Max.	Med.	Tube Passed	Ameba	Stools		Description	Remarks	Diet	Blood							
					Day	Night				Hb. %	R.B.C.	W.B.C.	Neut. %	S.L. %	L.M. %	Eos. %	Bas. %
7/25	98.6-100					0				50	4,116,000	14,600	67	23	4	6	
7/26	90.6-100	Emetin ⅔ gr.	+	+	3	3	Loose; brown; blood; mucus	Complained of pain in abdomen	Liquid								
7/27	99.4-100	Emetin 1 gr.	+	+	3	1	Loose; brown; blood; mucus	Pain									
7/28	98 -100	Emetin 1 gr.	+	+	0	0		Feeling comfortable				14,000	61	24	8	6	1
7/29	98 - 99.4	Emetin 1 gr.	+	+ †	0	0		Comfortable									
7/30	99 -100	Mag. Sulph. 2 dr.	+	—	3	0	Liquid and yellow; no blood; no mucus		Liquid			11,000	69	22	8	1	
7/31	99.2- 99		+	—	1	0	Semisolid; yellow; no blood; no mucus	Tube passed 22 hrs. after Mag. Sulph.	Soft								
8/1	98 - 99.8				0	0			Soft								
8/2	99.8	Milk Mag. Mag. Citr.	+	—	0	0			Soft								
8/3	99.8				0	0											
8/4	99.8	Mag. Sulph. ½ oz.	+	—	1	0	Liquid					9,300	57	35	8		
8/5	99.8	Milk Mag.	+	—	1	0	*Semisolid*		Full diet								
8/6	*99.8*							Hungry between meals									

* Urine negative except for indican.

† Inactive.

The prognosis depends on the severity of the disease and the complications, more particularly abscess of the liver, terminal infection, exhaustion in protracted cases, and intercurrent diseases.

Conclusions cannot be drawn from a few cases but in a condition as infrequent as is amebic dysentery in children, it is excusable to venture some suggestions from the study of a few cases.

The treatment of the seven cases (because one of the eight patients deserted after the diagnosis was made) referred to in the beginning of this paper consisted of ipecac in two cases and emetin in five cases. The two patients who were given the ipecac in the form of pills were 11 years and 6 years and they received 380 grains in 27 days and 243 grains in 25 days, respectively. In a third case ipecac was attempted but because of the inability of the patient to swallow the ipecac pills emetin was given with, I am told, satisfactory results. The four remaining patients, aged 8 5/12, 7, 4 and 4 years, respectively were given emetin. The 7-year-old child was given 4⅔ grains in five days, being given ⅓ grain three times a day. The amebas disappeared from the stools on the fourth day. The plan adopted in the treatment of my three patients was to pass the tube daily, and as long as amebas were found to give 1 grain emetin hypodermatically at one dose daily. When the amebas were no longer found the tube was passed every other day for two or three observations; then the interval of passing the tube was lengthened. The passing of the tube was not discontinued until after magnesium sulphate or castor oil was given and no amebas found.

The diet should be liquid until the blood and mucus disappear, when soft food may be given. Rest is absolutely essential, not only to the individual, but to the bowel. Emetin seems to provide rest to the latter.

CASE REPORTS

CASE 1.—F. A., white male, 1 year and 11 months old, native of Louisiana and resident of Donner, La., was brought to my clinic at Touro Infirmary, Nov. 8, 1912, because of loose, bloody stools.

His family history was negative, except that there had been two miscarriages. There were three well children and no bowel trouble in the family. He was a full-term child and born after a difficult labor. He was breast-fed and after his fourteenth month ate everything. His development was normal. He had had no other illnesses.

In June, 1912, his present trouble began with frequent stools, twelve to fifteen a day, containing slime and much blood, and accompanied with pain and straining. In August there appeared a lump in the left inguinal region which disappeared from time to time. During the present illness the patient has had slight fever.

Physical examination showed a fairly developed child weighing 21 pounds. He had a small left inguinal hernia. A rectal tube was passed and amebas were found. Otherwise his examination was negative. He was given an admission card but was not seen again. This is the patient that has been alluded to as having deserted.

CASE 2.—W. O., white male, 4 years old, native of Louisiana, was brought to me July 25, 1913, from Baton Rouge, La., with a complaint of frequent and bloody stools.

His father and mother were both living and healthy as were also his two sisters and one brother. There was no other member in the household with bowel trouble.

He was a full-term child delivered normally. He was fed exclusively on the breast for nine months, after which cereals and a proprietary food were given until his eleventh month when he was gradually put on a full diet, eating everything at the age of three. When 2 years old he had fever for four days which was called "malaria." The diagnosis, however, was not confirmed microscopically.

The patient lived in the suburbs of the city but used the water furnished by the city's waterworks. He was very fond of green vegetables, which he frequently stole and ate.

In November, 1912, he ate a great number of green pecans and within a week afterward his stools became loose, there being two or three movements daily. About one month later his stools became worse and the movements were accompanied by severe straining. They contained a great deal of blood and mucus. His stools were very frequent—from twelve to twenty-six daily. He was relieved somewhat after a consultation was held by two physicians, but this relief was only temporary. He had experienced periods of relief followed by relapses intermittently since the onset of the disease. The patient had lost much weight from December, 1912, to March, 1913.

He was admitted into Touro Infirmary on the evening of July 25, 1913, with a temperature of 98.6 F., pulse 102, respiration 24. He had no stool during the night.

On the morning of July 26 a rectal tube was passed and amebas were found. He was given emetin, ⅔ grain, by needle, was kept in bed and was put on liquid diet. In the next twenty-four hours he had six stools which were loose, dark brown and contained mucus and blood. He complained of pain in his abdomen and strained much at stool. The next day the tube was passed again, amebas found, and emetin, 1 grain by needle was given. He continued to complain of pain in the abdomen, but straining at stool was not so marked. During the next twenty-four hours he had only four stools which were of the same character as during the previous twenty-four hours. His urine examination was negative, except that it contained much indican.

On July 28 the tube was passed, amebas found, though not so many, and another hypodermic of emetin, 1 grain, was given. There were no stools in the twenty-four hours following and the patient was fairly comfortable.

On July 29 the tube was passed and a few amebas (inactive) were found. Emetin, 1 grain, by needle was again administered. As before there were no stools in the twenty-four hours, but the patient remained in a perfectly comfortable condition.

TABLE 2.—DATA IN CASE 3*

Date 1913	Temp. Min. and Max.	Med.	Tube Passed	Ameba	Stools		Description	Remarks	Diet	Blood							
					Day	Night				Hb. %	R.B.C.	W.B.C.	Neut. %	S.L. %	L.L. %	L.M. %	E. %
9/ 2	....	....	....	....	....	1	Liquid, mucus, blood	Cries with pain in abdomen	Eggs and milk								
9/ 4	100.5	Emetin ⅔ gr.	+	+	....	4	Liquid, mucus, blood	Cries with pain in abdomen									
9/ 5	....	Emetin 1 gr.	+	+	....	4	Loose, mucus; no blood	More comfortable									
9/ 6	100	Emetin 1 gr.	+	+	....	.....	....	Deserted									
9/11	....	....	+	—	....	.....	....	Returned.........	....	80	5,888,000	13,900	60	40			
9/16	100	....	+	—													
9/23	....	....	....	....	1 or 2	.....	Normal..........	Deserted									
9/27	....	....	....	....	?	?	Blood reappeared										
10/ 2	....	Emetin 1 gr.	+	+	?	?	Blood mostly at end of stool	Returned.........	Eats everything								
10/ 4	....	Emetin 1 gr.	+	+	?	?	Stools yellowish and brownish	Deserted									
11/ 4	98 -100	Castor oil	....	....	0	5	Mucus, blood, pus	Returned.........	Liquid								
11/ 5	98 - 99.3	....	+	+	2	0	Mucus, blood, pus	....	Liquid	85	4,775,000	8,680	58	30	4	6	2
11/ 6	98 -100	Emetin 1 gr.	+	+	0	0	....	Emetin at 9:00; vomited 9:45; pain in abdomen									
11/ 7	98 -100.5	Emetin 1 gr.	+	+ ‡	1	0	Small dark green	Rested well, no vomiting	....	....	....	7,458	59	31	6	4	
11/ 8	96.5- 99.5	Emetin 1 gr.	+	—	2	0	Normal..........	Rested well, no vomiting	Soft	....	5,700,000	6.600	48	40	6	6	
11/ 9	98.5- 99.5	Emetin 1 gr.	+	—	1	0	Loose, large flakes; mucus	Comfortable, no vomiting									
11/10	98 - 99	....	+	—	2	0	Normal..........	....	....	....	....	8,262	46	47	6	1	
11/12	98.5- 99	....	+	—	0	0	....	....	....	....	5,125,000	9,895	41	48	7	4	
11/14	99.5- 98.5	....	+	—	1	0	Normal..........	....	....	....	....	7,465	36	55	7	2	
11/17	96.5- 99.5	....	+	—	1	.....	....	....	....	....	5,150,000	5,708	24	67	7	2	
11/21	99.5	....	+	—	1	.....	Large, loose, watery stools; mucus; no blood	....	....	....	....	3,819	20	68	9	8	
11/22	99.5	....	....	....	1	.....	Loose stool; mucus; no blood										
11/24	99.5	....	+	—	0	.....	Loose stool; mucus; no blood										
11/27							Large brown stool	Deserted.........	....	....	5,025,000	6,076	30	58	11	1	1
11/28	99.5	....	+	—	....	... ..											
1914																	
2/11	....	....	....	....	....	3	Yellow; much mucus and blood	Returned.........	Light								
2/12	99.5	....	+	....	1	0	Yellow; much mucus and blood	....	Liquid								
2/13	100	Emetin 1 gr.	+	....	1	0	Yellow; much mucus and blood	Rested quietly									
2/14	99.8	Emetin 1 gr.	+	....	0	0	....	Vomited 1 hour after emetin	....	....	....	8,000					
2/15	98.5	Emetin 1 gr.	+	....	0	0	....	....	....	....	....	10,000					
2/16	100	Emetin 1 gr.	+	....	2	0	No blood........	Rested well									
2/17	99	....	+	—	1	1	No blood........	....	Soft	....	....	11,980					
2/18	....	....	....	....	0	0											
2/19	....	....	+	— §	1	0											
2/20	99.5	....	+	—	0	0											
2/21	99	Emetin 1 gr.	+	—	1	0											
2/22	99.8	Emetin 1 gr.	....	—	1	0	....	....	....	....	....	10,464					
2/23	99.5	Emetin 1 gr.	+	—	0	0											
2/24	100	....	....	....	0	0											
2/25	98.5	Emetin 1 gr.	+	—	1	0	....	....	....	....	....	10,850					
2/26	99.3	Emetin 1 gr.	+	—	1	0	....	Vomited after emetin									

* Urine negative except for indican.

‡ Few encysted; non-active.

§ Red blood-corpuscles.

On the morning of July 30 the passing of the tube showed no amebas. No emetin was administered but magnesium sulphate ʒii was given, from the effect of which he had three stools which were liquid and yellow and contained no blood and no mucus.

The tube was passed on the morning of July 31, twenty-two hours after the magnesium sulphate was given and no amebas were found. He was allowed to have soft food and continued to improve in every way. There was a tendency toward constipation which was met by the administration of milk of magnesia. The tube was passed every other day until Aug. 4, 1913, with negative findings. On August 4 he was again given magnesium sulphate and again the passing of the tube twenty-four hours afterward was negative. He was then placed on full diet and was hungry between meals. On August 8, after a negative finding on passing the tube, he was discharged as cured. The patient weighed 32 pounds, 11 ounces on July 27, 1913, and 34 pounds, 2 ounces on Aug. 4, 1913. Wassermann made on admission, July 26, 1913, was negative.

On August 24 he was brought back for observation. His parents stated that the previous week he had had as many as five stools daily and that the day before (August 23) he had vomited after drinking pop, had high fever and complained of pain in his stomach. While at home he had eaten everything. He had had a cold for the past week. He was readmitted into Touro Infirmary. He had a cough but examination was otherwise negative. His bowels were constipated. Physical examination was negative. On passing the tube no amebas were found. His urine examination was negative except for a small amount of indican. His blood showed a total white count of 9,300, small lymphocytes 35 per cent., large mononuclears 8 per cent., polymorphonuclear neutrophils 57 per cent.

TABLE 3.—DATA IN CASE 4*

Date 1914	Temp. Min. and Max.	Med.	Tube Passed	Ameba	Stools		Description	Remarks	Diet	Blood							
					Day	Night				Hb. %	R.B.C.	W.B.C.	Neut. %	S.L. %	L.M. %	Eos. %	Bas. %
5/26	100	....	....	....	.....	1	Large; brown; mucus; blood	Slept well..........	Liquid								
5/27	100 -100.5	....	+	+	1	0	Large; brown; mucus; blood	Slept well..........	Liquid	30	....	16,000	75	25			
5/28	99.5-100	Emetin 1 gr.	+	+	2	0	Large; brown; mucus; blood	Slept well..........	Soft	....	....	....	65	30	3	1	1
5/29	99 -100	Emetin 1 gr.	+	+	1	0	Semisolid; brown; little blood and mucus	Slept well..........	Soft	....	2,500,000	12,500					
5/30	99 -100	....	+	—	0	0	....	....	....	....	....	11,400	75	21	2	1	1
5/31	99 -100.4	Castor oil ½ oz.	+	—	1	0	Mucus; no blood	....	....	....	....	8,100	63	33	2	1	1
6/ 1	99 - 99.8	....	+	—	0	0	....	....	....	35	....	9,200	66	23	9	2	
6/ 2	99 -100	....	+	—	0	0	....	....	....	30	....	12,083	61	33	5	1	
6/ 3	98 - 99.5	Castor oil ½ oz.	+	—	0	0	....	....	....	35	....	10,220	58	38	3	1	
6/ 4	98 - 99.5	....	....	....	0	0	....	....	....	25	....	12,839	57	38	3	2	
6/ 5	98.3- 99.4	Mag. Sulph. 1 dr.	+	—	0	0	....	....	....	30	....	11,210	50	34	15	1	
6/ 6	98.3- 99	....	+	—	0	1	Normal										
6/ 7	99 -100.4	....	....	....	1	0											
6/ 8	99 -100	I. Q. S.	+	—	0	0	....	....	....	35	....	10,100	55	30	14	1	
6/ 9	98.3- 99	I. Q. S.	....	....	0	2	Normal										
6/10	99.2-100	Mag. Sulph. ½ oz.	....	....	0	3	Normal..........	Coughed									
6/11	99 -100.2	....	+	—	0	0	....	....	....	30	....	6,853	43	46	9	1	1
6/12	98.3	Castor oil ½ oz.	....	....	0	2	Normal..........	....	Full								

* Urine negative except for indican.

The tube was passed again on August 26 with negative findings. There were no ova found at any time in his stools. Frequent reports have been received about the patient's condition and up to the present time, eleven months afterward, he has remained cured.

Case 3.—A. M., white male, 4 years old, native of Louisiana and resident of New Orleans, came to my clinic at Touro Infirmary on Sept. 2, 1913, because of frequent and bloody stools.

His father and mother and brother were all living and healthy. There was no dysentery in the family.

The patient was a full term child of normal delivery. He was breast fed exclusively for twelve months after which table food was added to his diet and at 21 months the breast was discontinued. His development was normal. At 18 months he had measles and whooping-cough, when he was ill for about four or five weeks.

He had used only city water but ate a considerable amount of candy from different stores, and he also ate some green fruit.

The present illness began fifteen weeks previous to this report, when patient complained of pain in his stomach and passed blood and mucus in his stools. He was taken to one of the hospitals where he was treated for two weeks without any results. Some time afterward he was taken to a physician who gave him a white medicine (presumably bismuth) which had a transient beneficial effect. In a week, however, the condition reappeared and the patient was brought to me. During the attacks of dysentery he had from twelve to twenty-four stools daily and complained of pain in the abdomen and much straining at stool.

He was brought to the out-patient department of Touro Infirmary Sept. 4, 1913. A rectal tube was passed, amebas found, and he was given emetin, ⅔ grain. The following day his mother reported that though the stools were liquid and there were four in the twenty-four hours she had noticed no blood, but some mucus. The passing of the tube showed amebas and he was given 1 grain emetin.

Sept. 6, 1913, there was a tendency toward constipation. The tube again showed amebas and he was given emetin, 1 grain. After this the mother did not return for the treatment and the patient was recorded as having deserted. Five days later she returned and the examination after passing the tube was negative. She brought the patient back on two occasions convenient for herself, and then again discontinued reporting.

Oct. 2, 1913, the patient was brought back to the clinic complaining that on September 27 blood reappeared in his stools and had continued daily since then. The stools were yellowish, the blood being passed mostly at the end of the stool. October 2, however, the stool was blackish. The patient had a good appetite and had eaten everything he wanted. On passing the tube amebas were found and the patient was given emetin, 1 grain. The next day the patient did not return. On the third day amebas were found again and emetin, 1 grain, was given. The mother then took it on herself not to return with the patient for further treatment as the child had improved, and the patient was again recorded as having deserted.

November 4 the patient was brought to the Touro out-patient department for the treatment of the same condition (frequent, bloody stools). The mother hesitated a long time before returning because she had discontinued of her own accord on the previous occasions. As there were no empty beds at Touro Infirmary and as it was believed best to treat the child in hospital, he was admitted into my service at Charity Hospital.

On admission he was given a dose of castor-oil. The next day the tube showed amebas in great numbers. He was given emetin, 1 grain daily, as long as amebas were found and for two days longer because of his previous unsatisfactory treatment. After the first twenty-four hours no active amebas were found and likewise after the second twenty-four hours. No amebas were seen for two consecutive days thereafter. The tube was then passed every other day for four days and finally twice weekly so that observations were carried over a period of three weeks. During his stay in the hospital it was extremely difficult to keep the patient in bed and whenever he saw the opportunity he would get up and play about in the ward.

His stools became a little loose and contained a small amount of mucus, but his mother took him away without his being discharged.

He returned again on Feb. 11, 1914, for the same condition. The treatment was again instituted and after four doses of emetin, 1 grain daily, it was discontinued as amebas were no longer found. After the first dose his bowels did not move but when they did move after the third dose there was no blood. On passing the tube three days after the last dose of emetin the presence of a few red blood-corpuscles caused the treatment to be begun again. Though no amebas were found he was given 5 grains of emetin in six days, one day being omitted through error. The tube was passed regularly after this and no further positive or suspicious findings were made. His mother took the patient away, after he had contracted a slight bronchitis on March 2, 1914, before he was discharged.

Since the last attack, which was treated under more favorable conditions than the previous ones, the patient remained well up to a report of one week before this was written.

Case 4.—M. R., white male, $8\frac{5}{12}$ years old, native of Louisiana and resident of Donaldsonville, La., was brought to my clinic at Touro Infirmary, May 26, 1914, for frequent stools containing blood.

He is the fifth child of eight, all of whom are healthy, as are the parents. His mother had four miscarriages and one stillbirth. An aunt died of tuberculosis five years ago. He was a full-term child of normal delivery and was breast fed for three months, after which he was given the bottle with milk and sweetened water.

Aside from the present illness he had never been sick. He usually drank cistern water and never well water. Three years ago a short time after eating of peanuts he passed much gas and later blood appeared in his stools. There were intervals when the dysentery would be much better, but recently he had become much worse. During the attacks he had much pain in his abdomen and strained a great deal at stool. The pain was more severe during the first three months of the illness. He had never had much fever. Four physicians were consulted at various times but none had ever made the diagnosis. One advised bringing him to the hospital. His mother thought that he was gradually becoming worse. He had never been confined to bed before he was admitted on May 26, 1914.

His stools were large, brown and contained mucus and blood. The tube was passed, amebas found and emetin, 1 grain, given. In all he was given 2 grains of emetin by needle after which the amebas were no longer found and the blood stopped. The tube was passed every day for four days after the first negative finding, then two days later with the same result. He was given castor-oil twice and magnesium sulphate twice and no amebas were found on passing the tube following the administration of the purgatives. Not much time has elapsed since this case was first treated but the patient is improving nicely.

DISCUSSION

Case 1 came from a district low and swampy and is of interest from a diagnostic point of view and because of the age of the patient.

Case 2 was given $3\frac{2}{3}$ grains emetin in four days. There was no blood after the second dose of emetin and no amebas were found after the fourth dose of emetin. This case is of especial interest because of the small amount of medication used; the prompt effect of the emetin in a case of such long duration (8 months); and the results of the treatment, eleven months having elapsed with no return of the illness.

Case 3 cannot be considered a fair test of any treatment, because (1) the first two attacks were treated without rest owing to the refusal of the parents to permit the patient to be admitted into the hospital; (2) the first two treatments were not completed; (3) during the third attack the patient was not kept in bed, and just at the time he should have been more closely observed, he deserted; (4) the fourth attack may have been due to no rest; and because (5) of the lack of intelligence and cooperation on the part of the parents, who gave the child all sorts of food when visiting him.

It must be borne in mind that there is a possibility of reinfection in this case, especially when the hygiene and habits (which were unfavorable) of the patient are considered.

The vomiting must be mentioned, as it is possible, though hardly probable, that the emetin alone caused it, because he did not vomit after each dose.

This case is of particular interest because of the relapses which may be accounted for as already mentioned. Also because it demonstrates the promptness of the effect of emetin in controlling the symptoms and the harmlessness of its large and continued dosage, and of its ultimate effect in the treatment.

It is too early yet to venture much in Case 4; suffice it to say, however, that the prompt effect of emetin was again demonstrated, since after the administration of 2 grains of emetin given in two days the blood disappeared and no amebas were found in the stools, and the effect was so prompt in a case of such long standing, (3 years).

All three patients were given 1 grain doses of emetin hypodermatically, and though it might be considered a large dose, no harmful effects resulted even in Case 3, in which the patient was given the drug on so many occasions and during one attack 5 grains in six days.

From the study of the foregoing cases and the literature I believe that emetin is the specific for amebic dysentery. There are some observers who have recorded cases treated satisfactorily and which have remained cured. There are others who have not reported such satisfactory results.

In the foregoing cases the effect of emetin was spectacular. After its administration the blood in the stools disappeared as if by magic; the amebas were soon no longer found, the stools were promptly diminished in frequency, and there was a tendency toward checking the bowels altogether and giving the necessary rest. Is there anything more to be desired? Undoubtedly it is the drug for children with amebic dysentery, as it may be given to them while quite young, its effect is rapid, and there are no disadvantages experienced as in endeavoring to have the child swallow ipecac pills or the inconvenience and struggle incident to colonic irrigation, and its effect is *certain.*

Maison Blanche Building.

ABSTRACT OF DISCUSSION

Dr. Thomas S. Southworth, New York: We of the North are prone to look on amebic dysentery as a matter of warm climates and the tropics. We see few cases, even in adults, unless the persons have been in some other portion of the country. Yet I doubt whether cases of dysentery have been sufficiently investigated for the presence of the ameba. Last summer I had an opportunity of seeing a woman of nearly 80 who had traveled only between Ohio and Maine, yet she had amebic dysentery which was promptly checked by the use of emetin hypodermatically. In these days when so much of our garden produce and fruit comes to us from the southern states, it is perfectly possible that the origin of this infection can be brought to us, and we should be more on the outlook for these cases in children. I believe we shall find more of them if we are watchful.

Dr. Henry Dwight Chapin, New York: This disease does occur rarely in New York. Every year we have one or two cases in the babies' ward of the Post Graduate Hospital. These patients have not been out of New York. Perhaps the disease is more common than we think, and we have not looked with sufficient diligence for the ameba.

Dr. J. W. Amesse, Denver: Any contribution to our knowledge of amebic dysentery should be welcomed, not only by this Section, but by the entire Association. It was a matter of common observation and comment among those who served in the Philippines during the early days of our occupation, that while amebic dysentery in adults was the *bête noire* of our daily life, few if any cases were found in children. I believe there is a relative age immunity to this disease, as there is to yellow fever, just as we find a relative race immunity among certain peoples to typhoid, hookworm disease, etc. So far as emetin is concerned, reports from every quarter warrant us in asserting that this powerful remedy is a specific for amebiasis comparable with quinin in malaria and antitoxin in diphtheria. I have seen amazing results follow its use in the practice of a colleague. Soldiers and civilians invalided home years ago and suffering periodic recrudescences of dysentery, have become practically transformed, and have again taken up their work as productive members of society.

Dr. W. W. Butterworth, New Orleans: The amebas in this country are wide-spread and not confined to the South. Neither are all amebas pathogenic. It is only when we have recurring attacks of dysentery, bloody mucus and straining, which pass away in a few days if not treated, to recur again, that our attention is called to the pathogenic amebic dysentery. Therein lies the important diagnostic point between pathogenic amebic dysentery and ordinary dysentery. I had an interesting experience in New Orleans, with a soldier who returned from the Philippines. He had barely escaped death in those islands; he was a married man, with a family of four children, the youngest of whom was 13 months old. This child was partially breast-fed. It was found to have amebic dysentery. Two of his other children, his wife and himself suffered from the same disease. It seems fairly reasonable that the infection occurred through the person of this returned soldier. I heartily concur in the value of emetin. It is the best agent we have in the treatment of this disease. Treatment by ipecac and flushing is most distressing and most annoying, and is frequently foregone by the patient. They will not subject themselves or their child to such a treatment. Emetin is far and away the best treatment we have of this condition.

Farmers Being Paid for Milk on Score-Card Basis.—For the past year or two the larger milk companies selling milk in this city have purchased milk from dairy farmers on the score-card basis. In general the contract provides for a premium of 10 cents per hundredweight for a score above 68, particular attention being given to methods of operation. That this is an effective incentive to the dairy farmer to produce milk according to modern standards is not open to question.—*Weekly Bull. Dept Health, City of New York.*

A YEAR'S EXPERIENCE WITH CONTAGIOUS-DISEASE NURSES*

WM. H. PRICE, M.D.

DETROIT

This paper assumes as established the fact that the taking of wholesome ways and reasonable precautions for the benefit of the public health may be expected to result in the prevention of disease, a healthier community, and more efficient individuals with lengthened lives. The truth of such a statement has come to be a matter of common knowledge. If evidence of it were needed, however, it is available in abundance, as witnessed by those spectacular sanitary reforms with which the world, lay as well as professional, is familiar.

With the prospect of such a reward, of disease prevented, dependents and public charges eliminated, and individual and community resources conserved, it is a source of wonderment that the preventable waste of disease and physical deficiencies continues to be endured. The explanation can only be in a lack of appreciation of these facts by laymen, by many physicians, and especially by those having in charge the appropriation of the public funds, when the principle of disease prevention is applied to their own household or community. It has therefore followed in natural sequence that education of the public has come to be a fundamental recourse for all activities having for their aim the protection and promotion of the public health. Some authorities even go so far as to state that efficient health measures are 80 per cent. educational.

Control of contagious disease is a rudimentary principle to be observed by all authorized public-health agencies. There are two reasons for this:

First, the problems of the control of communicable diseases are reduced to scientific exactness, and therefore greater results may be expected from the time, money and effort expended.

Secondly, public education regarding the possibility and advisability of reducing these diseases has progressed to such a point that the public demands their suppression as a prerequisite to the granting of further support, both moral and financial, for measures directed at more obscure diseases and defects in which all progressive health departments are interested, namely, housing, occupational, industrial and hereditary.

When, therefore, we embark on any program for the protection of the public health, it follows as a natural corollary that the suppression of contagious diseases is a prime requisite, and that the method of personal education directed at the known foci of infection is of greatest importance.

Previous to July 1, 1913, the following custom prevailed in Detroit relative to contagious diseases: The house was placarded immediately after the disease was reported. The next day a quarantine inspector visited the premises; his mission was to furnish fuel and groceries in needful cases, and to warn isolated persons against breaking quarantine. He called again as time and necessity indicated, and at the termination of the illness disinfected the house and removed the placard. Three inspectors were so employed at a salary of $1,000 per year each. They were faithful, reliable men with no pretense of hygienic training. Release cultures for diphtheria were taken by the tuberculosis nurses, thus involving a duplication of work by health-board employees.

---

* Read before the Section on Preventive Medicine and Public Health at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

July 1, 1913, the quarantine inspection service was discontinued. Twelve contagious-disease nurses were appointed; tuberculosis, being a contagious disease, is included within the scope of their activities. These nurses are graduates and registered, or qualified for registration, and are each paid $1,000 per year. Districts are assigned according to density of population and facilities for transportation. A case of communicable disease being reported, the house is placarded, as formerly, by the police department. The same day, or at latest the next morning, a nurse visits the premies. A certain proportion of the patients go to the hospital, whereupon she immediately disinfects the house. Otherwise, she determines the advisability of isolating one room to permit the wage-earner to work and sleep at home. A card type history of the case and family is made out. Grocery supplies are furnished if necessary. The nurse's real mission, however, is to read over with the quarantined family the prophylactic literature published by the health board, which is similar to that furnished by other cities, referring to the particular disease in question, and also to give a practical demonstration of its application. Typhoid fever is a typical example. The nurse carries a half-pound can of chlorid of lime, a 6-ounce bottle of phenol (carbolic acid) and mosquito netting. A jug, a crock or other receptacle of two gallons' capacity is found and the chlorid is dissolved in two gallons of water, a basin of the solution is prepared and placed ready for the attendant's hands, disinfection of stools and urine are explained in detail, the phenol is made into a 5 per cent. solution with 1 gallon of water for disinfection of bedclothes and body linen. Antityphoid vaccination is urged. The windows and door of the sick-room are screened with mosquito netting, free if necessary. Return visits are made frequently and the supply of disinfectants is renewed. Account is kept of milk bottles to see that none are diverted to improper uses.

If subsequent infections take place in the family or neighborhood through the medium of flies or otherwise, it seems reasonable to assume that this must now be due to the wilfulness of the afflicted household. On termination of the illness, the house is disinfected by the same nurse.

Similar routine, varying with the character of the disease, applies to small-pox, diphtheria and scarlet fever. Perhaps a majority of the scarlet-fever cases are not seen by the doctor after the first week. At the end of the minimum period of quarantine it is the custom for the parent to call up the physician and notify him of that fact. He thereupon reports the patient as recovered. As a result of the careful examination of the patient before release, the average period of quarantine has been materially lengthened. The development of additional cases in the household is better reported.

Diphtheria cultures, both from schoolchildren, for release, and from suspicious cases at the request of physicians, are satisfactorily taken by the nurses. Reports are also returned to the main office of the progress of the illness and of the quantity of antitoxin used, thereby enabling the health officer to suggest, as diplomatically as possible, to the attending physician that doses of 2,000, 3,000 and 4,000 units for curative purposes are entirely inadequate and well calculated to perpetuate the disease and raise the death rate.

Objections on the part of the profession and the public to this system have been few and entirely out of proportion to the commendation it has received. The few objections have proceeded from two sources: First, the tradition on the part of certain physicians that disease is an individual affair of physician and patient. Such a contention is manifestly false. Contagious disease especially is not the personal affair of the individual, household or profession—the public is as much interested.

Secondly, there is a natural disposition on the part of the household to pump the nurse, as well as gossip with the neighbors and quiz the physician with the resulting information. Few practitioners have escaped the irritation of uncomplimentary remarks attributed to friends or other physicians before the introduction of the contagious-disease nurse, and in a few instances the nurses have been accused of talking too much. The nurse's training fits her perhaps better than any other individual to accomplish her purpose without suspicion of preempting the physician's field.

The following is a report of the contagious-disease situation in Detroit for the months of January, February, March, April and May, 1913, preceding the introduction of the contagious-disease-nurse system, as compared with the corresponding period in 1914, when that system was fully established:

COMPARISON OF FIRST FIVE MONTHS OF 1913 WITH SAME PERIOD IN 1914, WITH REGARD TO DEATHS FROM CONTAGIOUS DISEASES

	Deaths 1913	Deaths 1914	Reduction in 1914	Percentage of Reduction in 1914
Diphtheria	128	71	57	44
Scarlet fever	89	27	62	70
Typhoid fever	53	19	34	64

It is not sought to establish the conclusion that the contagious-disease nurse is alone responsible for the reduction shown above. The conclusion is drawn that she is a most valuable field agent of the health officer and the one best calculated to instil into the minds of quarantined persons the necessity for the taking of wholesome ways and reasonable preventive precautions. Also that the acquisition of obvious sanitary information by such persons is of the greatest importance in safeguarding the public health for two reasons; first, every infected person is a possible or even probable source of subsequent infections which should be guarded against at their source, and the attending physician has not as yet given sufficient attention to imparting this information; secondly, quarantined persons of the present will constitute themselves the professed authorities of the future in matters relating to communicable disease, and it is of the greatest importance that their views be definite and correct.

Board of Health Building.

Pathology.—Pathologic anatomy which in other fields of pathology yields fundamental conceptions even on naked-eye inspection, in the case of mental diseases can neither provide clear data for clinical application nor be itself established without minute and painstaking microscopical research. And very often the latter demonstrates to us, in agreement with experimental data, that certain slight and transient influences, though not going the length of imprinting any sign of their passage on even such a delicate structure as the anatomical network, are still capable of inducing very grave functional disturbance.—Lugaro, Problems in Psychiatry.

CEREBELLAR SYMPTOMS AND CEREBELLAR LOCALIZATION

INCLUDING KINEMATOGRAPHIC OBSERVATIONS ON CEREBELLAR PHENOMENA [*]

CHARLES K. MILLS, M.D.
Professor of Neurology in the University of Pennsylvania; Neurologist to the Philadelphia General Hospital

AND

THEODORE H. WEISENBURG, M.D.
Professor of Neuropathology and Clinical Neurology in the Medico-Chirurgical College of Philadelphia; Neurologist to the Philadelphia General Hospital

PHILADELPHIA

RECENT ADVANCES IN CEREBELLAR SYMPTOMATOLOGY

In recent years, and especially under the lead of Babinški and Rothmann, some features of the old cerebellar symptomatology have come to be looked on in a different light and some of the symptoms regarded as elementary have been subjected to considerable dissection. The so-called cerebellar ataxia, now regarded as a symptom complex rather than as a pure symptom, has been more clearly differentiated from the ataxia of tabetics. Luciani's astasia, asthenia and atonia are acquiring a new interpretation.

Our studies emphasize the fact that asynergy is the fundamental symptom of cerebellar disease.

Cerebellar tremor and the new symptoms, hypermetry and adiadokocinesis, all now recognized as important cerebellar disorders, when reduced to their symptomatic elements, are seen to be dependent in large part if not entirely on loss or disturbance in the power of performing more or less complex movements together for the accomplishment of a definite end.

Luciani's asthenia, atonia and astasia are to be regarded not so much as special manifestations of asynergy as derivatives or resultants of asynergic effort. Asthenia is due to the exhaustion which results from efforts to perform movements which cannot be properly grouped and directed. Cerebellar atonia, which is very irregular in its expression, is a relaxation dependent on the fact that tonectic stimuli from the cerebral cortex cannot rhythmically combine with unsynergized movements. Primarily, tone is a cerebral, not a cerebellar attribute.

Attention may be fixed on the views just expressed by the following tabular statement:

Fundamental Symptom in Cerebellar Disease:
  Asynergy.
Special Symptomatic Manifestations of Asynergy:
  Hypermetry.
  Adiadokocinesis.
  Tremor.
Symptoms Resulting from Asynergic Efforts:
  Asthenia.
  Atonia.
  Ataxia.

Whether vertigo and nystagmus, which are so often present in disease of the cerebellum, are ever true cerebellar symptoms is a question which has been much discussed. From the time of Flourens' early experiments, physiologists and clinicians have concerned themselves with the relations between labyrinthine or vestibular nerve phenomena, and those dependent on pure cerebellar activity. Comparisons and parallels have been drawn and the extraordinary similarity in some instances and even the identity between the results of experiments on the vestibular nerve apparatus and the cerebellum have been shown by many competent investigators. The decision whether vertigo and nystagmus are cerebellar or vestibular symptoms must be largely determined by a thorough study of each case.

From the position of the cerebellum and its peduncles, the cranial nerves and particularly those from the fifth to the twelfth are frequently implicated in cerebellar affections, the complex resulting being compounded of true cerebellar symptoms and those referable to such of these nerves as may be involved. To this type of case Stewart and Holmes have given the name of "extracerebellar." The well-known and much-studied affections of the cerebellopontile angle belong in this category, although extracerebellar symptoms are not limited to the phenomena of lesions of this angle.

Besides the cranial nerves, the nuclei and the tracts of the neuraxis are not infrequently invaded in cerebellar lesions, and we have still another combination of symptoms, cerebelloneuraxial, which requires close scrutiny in the process of diagnosis.

The clinician is indebted to Babinski for the fixation of his attention on cerebellar asynergy. Ferrier, however, recognized the fact that synergic control was the particular rôle of the cerebellum. Discussing the mechanism of cerebellar coordination and the relative development of the cerebellum, he says:[1]

> Every form of active muscular exertion necessitates the simultaneous cooperation of an immense assemblage of synergic movements throughout the body to secure steadiness and maintain the general equilibrium; and on the hypothesis that the cerebellum is the center of these unconscious adjustments we would expect the cerebellum to be developed in proportion to the variety and complexity of the motor activities of which the animal is capable. The facts of comparative anatomy and development are entirely in harmony with this hypothesis.

Synergy or synergia is the power or faculty by which movements more or less complex, but functionally definite, are associated in a special act or acts. In a broad sense it is motor association, this association being carried out in movements of different parts of the same limb or in synchronous movements of the trunk and limbs, or of the head and trunk and limbs, etc.

Movements are mismeasured, giving dysmetry or hypermetry because the patient with cerebellar disease is unable motorially to associate the different elements of such movements. Adiadokocinesis, as illustrated for example by the impossibility of correctly and rapidly pronating and supinating the hand on the forearm, is due fundamentally to the inability to carry out fine motor associations of an antagonistic kind.

The method usually employed in clinical study or class instruction of demonstrating hypermetry is the well-known finger-to-nose test; for adiadokocinesis, partly flexing the forearm or forearms on the elbow and then rapidly pronating and supinating the hand, the movement being largely one from the wrist. Adiadokocinesis and hypermetry are both demonstrated by the rapid pronation and supination of the hand on the knee. Tremor is exemplified by the finger-to-nose test and by efforts to grasp an object or by writing. Hypermetry is shown by the finger which usually is able to touch the end of the nose overshooting to one side, or in the hand-knee test by the hand not keeping within the normal range of movement.

---

[*] Read before the Section on Nervous and Mental Diseases at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

[*] On account of lack of space this paper has been abbreviated for The Journal. It will appear in full in the Transactions of the Section and in the authors' reprints.

[1] Ferrier, David: Functions of the Brain, Ed. 2, 1883, p. 200.

The phases of asynergy described as dysmetry or hypermetry are discoverable, however, in cerebellar cases in the abnormal attitude or movements of the head, in the bending of the trunk, in the abduction, sprawling, overstepping or understepping in walking, in the spreading of the limbs in standing and in much else that is done by the patient, and these dysmetric phenomena are frequently accompanied by tremor and adiadokocinesis, all of which are well defined in kinematographic observations.

KINEMATOGRAPHIC OBSERVATIONS

Our kinematographic investigations indicate the necessity of some revision of views both as regards the methods of describing and the intrinsic characteristics of cerebellar symptoms. Some new points in cerebellar symptomatology were elicited by these investigations.

The *gait* of a cerebellar patient in the majority of cases is chiefly trunkal. The trunk may go backward, or forward, forward and to one side, or simply to one side. The inclination may be total or partial. In every attempt on the part of the patient to walk, for example, the trunk from the first leans backward, forward or to one side, it being impossible for him to stand for any length of time in the erect posture. He may be able, however, for a short time to stand erect, or to walk either with the trunk erect or leaning, but even when this is possible he is likely soon to lurch forward or backward or to one side. In this type of case the movement of the trunk is predominant and forms the most impressive part of the picture, the legs seeming to act simply as props for the trunk. The trunk leads, and whatever way it goes, the legs follow. If, for example, the trunk leans forward and to the left, the swing of the left leg is shorter than that of the right, or if the trunk goes forward and to the right, the swing of the right leg is less than that of the left, the legs accommodating themselves to the movements of the trunk.

Our observations on pelvic girdle and shoulder girdle movements in locomotion, both when the patient is standing and when on all fours, are especially instructive. In some of the cases the asynergy is just as marked in the shoulder girdle as in the pelvic girdle. In those cases, however, in which the asynergy is more marked in the pelvic girdle, even if both girdles are affected, the gait is entirely different. Here the legs are held farther apart and the arms are nearly always held partly outstretched and semiflexed at the elbows. If the asynergy is shown alone in the pelvic girdle movements, the trunk assumes a different relation to the legs than in the cases just described. Here the trunk is held rigidly erect and the legs are pushed forward from the pelvis, giving the impression that the trunk goes after the legs. In the extreme pelvic girdle cases, it is impossible for the patient to walk without help, but when assisted, the trunk is very rigid, the legs being thrown out in almost any direction.

The cerebellar gait is often described as drunken or reeling, but from our observations, the gait is not like that of one who is drunk. A drunken man will reel in any direction, but he does this largely because of his mental, that is, of his cerebral reduction. A slightly drunken man simply reels forward or to one side, while one who is very drunk is unable even to stand up and any attempt on his part to do so brings on a sort of crumpling of the whole body. In such attempts the legs give way and the man falls because of this and not because his trunk forced him in a given direction. Besides, there is no attempt on the part of a drunken person to hold his arms outstretched for protection, whereas, the cerebellar patient is always careful as to how he walks, and knowing that he tends to stagger, makes efforts to obviate this and assumes as far as he can protective positions. He not only uses his cerebrum, which is largely out of commission in the case of the drunken man, but he even compensates in some degree for his cerebellar impairment by the forced or overuse of his cerebrum.

As has already been mentioned, when a cerebellar patient walks, the whole trunk may be projected in a given direction or one shoulder or one side may be moved more than the other, as for example, when a patient walks forward and to the left, in which case the left shoulder and left trunk are forward, the right side of the body lagging. The same thing will be true no matter what other position the body assumes, as when the patient changes to a sitting or standing from a recumbent posture. If the case is left-sided, then the left shoulder and trunk move first and more than the right; if right-sided, the right shoulder and trunk are more in the picture. If the case is bilateral or central, that is entirely trunkal, no difference in the movement of either side is detectable.

In the pelvic girdle cases when the patient attempts to get up from a recumbent posture and temporarily assumes in doing this a position on his hands and feet, the sway of the pelvis is very marked and may be chiefly to one side, but is nearly always to both sides. It is noticeable that in this position, the taking of which is one of the best methods of showing the relative degrees of pelvic girdle and shoulder girdle asynergy, if the pelvis only is involved, the trunk will not sway and whatever trunkal movements are present, are compensatory. These cases are much more common than those of the shoulder girdle. The methods thus indicated of demonstrating pelvic girdle and shoulder girdle asynergy have not, we think, been described before.

Turning now to some of our observations regarding *the movements of the limbs,* we are convinced that in testing for hypermetry, for example, it does not matter very much whether the finger goes beyond the nose, for many patients because of being repeatedly asked to do this learn to put their fingers to their noses quite well. The important thing is that if there is an asynergy of the upper limb when the patient attempts to place his finger to his nose, the movement being of wide range as when it starts with the hand on the knee, the whole arm including the shoulder takes part in the movement. The circle described by the hand is greater than it should be and in the majority of cases the movement is quicker than normal, although in some it is the contrary. In some cases when the patient is asked to put his finger to his nose the arm is swung inward; in some cases, outward and in some directly to the nose. The more marked the dysmetry the greater is the tendency for the sweep to be inward, that is, toward the body, and the greater is the involvement of the shoulder.

In testing hypermetry in the legs, if the patient is in a recumbent position and asked to put his heels to his knees or his heel to any point indicated, there is first an overflexion of the thigh on the abdomen and the heel nearly always overshoots the desired point. The nearer the pelvis is the point to be touched, the greater the sway of the leg, but the heel is usually placed on the desired point.

An equally good way to test hypermetry is by asking the patient to put the heel to the buttock. In this the movement is nearly always quick, the thighs are much more flexed on the abdomen than they should be and in the height of the excursion, with the heel approximating the buttock, there is always a to-and-fro sway of the limb, the degree of this depending on the severity of the symptom.

In testing for adiadokocinesis the attempts at alternate pronation and supination of the forearm and hand quickly show the degree of asynergy of the limbs. Adiadokocinesis may be tested in the lower limbs as well as the upper by alternate rotations or adductions and abductions. The defect is readily observed. The excessive movement may be either inward, outward, upward or downward in the upper limb and inward or outward in the lower limb. This is best brought out if only one side is involved, for then it is possible to compare the movements with those of the limbs of the other side. In some cases the movements are slow, but the important thing to look for is the overmovement.

In a case recently placed on record by one of us there was a *loss of emotional expression* on the right side of the face although the patient could use this side for every other purpose. The loss of emotional expression, while evident to ordinary observation, was emphasized by the kinematograph. In other cases, as for example, in paralysis agitans, disseminated sclerosis and focal lesions of the pons, we have been able to study changes in emotional expression more thoroughly than by the ordinary clinical method.

Not only can unilateral loss of emotional expression be exhibited, but a loss of all or almost all expression. One of our patients who could not be made to laugh or cry talked in a slow, monotonous, stupid manner with drooling of saliva. The moving pictures show not only the loss of emotional expression, but also the manner of speech. It is interesting that in this patient the movements of the limbs and body are of the same character as those of speech.

We believe in a true *cerebellar speech*, one type of which is shown in the patient described above. In another case which was for a long time in the nervous wards of the Philadelphia General Hospital the history was such as to indicate that the patient had had a hemorrhage into the anterosuperior portion of his cerebellum. He had most exquisite asynergy in his tongue, facial and laryngeal movements. His speech might be described as jerky and crackling. In this patient and in one other whom we recall, not only was the speech affected in the manner described, but mastication and deglutition were almost impossible because of the asynergy of the involved musculature.

In most of our cases examined kinematographically there were no asynergic *movements of the head and neck*. The head in these cases usually maintains the same plane as the trunk. In one case, however, shown in the series of pictures, the head is carried distinctly to one side. While the cases seemed to be relatively limited the fact that we have had a few speaks for the localization of movements of articulation, phonation, mastication and deglutition.

So far as our kinematographic observations are concerned, we showed, in one case, previously mentioned, of cerebellar agenesis, what we regard as true *asynergia of the eyeballs*. The eyes are never at rest. They move upward, downward, to either side, and in a rotary direction and combined, with the nodding of the head, give a furtive appearance, as if the patient were constantly dodging something. No two successive movements of the eyeballs are alike and it is with difficulty that the movements can be followed with the naked eye, although with the kinematograph this becomes easy.

In one of our patients vertical nystagmus was always present, and this occurred no matter in what direction the patient attempted to look. We believe because of the symptomatology that this patient had a lesion of the upper cervical cord and inferior cerebellar peduncles. We regard the nystagmus as due to involvement of the vestibulocerebellar apparatus, probably of the parts connecting the vestibular nuclei with the deep nuclei of the cerebellum.

In one of our patients in whom an exposure of the cerebellum was made, the cerebellum was incised to about the depth of half an inch at about the junction of the left superior semilunar lobe with the vermis. Directly after the operation and ever since, marked lateral jerkings of both eyeballs have been constant, but these have been more marked on the left. If the patient looks to the right the nystagmic movements are not so forcible, but on looking to the left they are strikingly exhibited. It is not that the left eyeball moves without the right, but that the excursion in the left eye is more marked than in the right and gives one the impression that the left eyeball alone is moving. It will be remembered that the incision was on the left. As these movements were not present before the operation it is apparent that they were the direct result of the incision into the cerebellum.

Babinski has described catalepsy as a new cerebellar symptom. In demonstrating this the patient is placed on his back, the thighs semiflexed on the abdomen, the legs on the thighs. After a few oscillations, according to Babinski, the legs become stationary and maintain their position for a longer than normal period. These phenomena in one patient were shown by Babinski by means of a moving picture at a meeting of the International Congress, 1913.

We found that most of our patients were too asynergic and asthenic to maintain their legs in the above-described position for more than a few moments. In other patients in whom the asynergy was not so marked, and particularly in the unilateral cases, we tested both the upper and lower limbs at the same time. The upper limbs in this test were first placed in a vertically extended position. The limbs on the affected side slowly drooped and reached the level of the body sooner than those of the unaffected side. In not a single patient did we find true catalepsy and we therefore do not look on it as a manifestation of pure cerebellar disease. In one of our patients, a very powerful man, one of our chief illustrations in the series of moving pictures, the man placed on his back was able to maintain his legs and arms in a set position—that of semiflexion of the lower limbs and vertical extension of the upper—but in this case there was no preliminary swaying and we regard the exhibition as pseudocataleptic and simply due to the great strength of the individual. The case was one in which the asynergic phenomena were expressed bilaterally, although the abnormal movements were more marked on the left and especially in the pelvic girdle.

CEREBELLAR LOCALIZATION—FOCAL SYMPTOMATOLOGY

In studying the focal symptomatology of cerebellar disease, hypermetry, adiadokocinesis and tremor at times indicate not only the presence of cerebellar asynergy, but give the clue to the part of the cerebellum most involved, as when these phenomena are most markedly exhibited in a special part of the body—the trunk, the upper or lower extremity, the head, face or eyes. These facts of localization are, we believe, emphasized by kinematographic investigations, as we have just tried to show.

The clinician soon finds that the focal symptomatology of cerebellar disease is not so easily comprehended as cerebral focal symptomatology. He recalls, however, from his experience, observations which have a bearing on this question. He has had cerebellar cases with marked unilaterality in their manifestations, indicating that one-half of this organ exerts its influence with marked predominance on one side of the body. In other cases, not on the whole numerous, ocular movements have been disordered in a way not explicable by limited lesions of parts of the brain other than cerebellum. In other instances, also not numerous, the speech of the patient is affected in a manner not to be explained merely by bulbar or cerebral involvement, while in many instances both ocular movements and speech disturbances are wanting. He has noted that in different cerebellar patients the disordered movements of the trunk differ from each other in ways which can be definitely discriminated. Shoulder girdle movements in one instance, and pelvic girdle movements in another, are more affected. The changes in emotional expression sometimes observed differ in different cases. The head takes a special attitude in a few cases; in many others this not occurring. Extraordinary combinations of abnormalities of movement may be discoverable on casual observation or elaborate investigation.

The cerebellum as a whole and all of its parts are concerned with the function of synergia. When, however, a particular part or parts of the body are the seat of abnormal motor phenomena of cerebellar origin, such manifestations are focal and more or less capable of localization. If these focal symptoms were arranged in tabular form, we would have a list something like the following:

Focal Symptoms Indicated by Localized Asynergic Movements:

Eye movements.
Attitude and movements of head.
Movements of jaw, face, tongue, larynx, etc.
(Disturbances of speech, emotional expression, etc.).
Position and movements of trunk.
Special movements of upper extremity.
(Disturbances in fine movements including writing).
Movements of trunk and upper extremity (shoulder-girdle movements).
Special movements of lower extremity.
Movements of trunk and lower extremity (pelvic-girdle movements).

CEREBELLAR LOCALIZATION—COMPARATIVE ANATOMY AND EXPERIMENTATION

Some of the results of embryologic and morphologic investigation of mammalian cerebella indicate the development and elaboration of function in this organ. Among those who have contributed work of great value in this direction we find some of the most distinguished names in the field of neuro-anatomy: Kölliker, Schwalbe, Elliot Smith, Bolk, Van Rynberk, Charnock Bradley and others. To the results of the investigations of some of these, Rothmann has appealed in corroboration of his own experimental and pathologic findings.

Studying the mammalian cerebellum from the lowest types to man, certain facts of paramount interest regarding the development of fissures, folia, lobules and lobes attract attention. The methods in which fissures appear, extend, recede and disappear and the horizontal and sagittal expansion of cerebellar substance go hand in hand, as in the development of the cerebrum with additions and intensifications of function.

In the lower mammals like the squirrel, the ox, the dog and the monkey, the cerebellum has a less marked subdivision into a middle lobe and lateral lobes than in man. Such subdivision appears and becomes more definite as the evolutionary series approaches man. Glancing, for example, at the dorsal aspect of a series of the cerebella of apes or their semidiagrammatic representation as given by Bolk, one deep somewhat anterior fissure usually called the *sulcus primarius* is uniformly observed traversing the entire width of the cerebellum, while above and below this are distinct fissures shallower and of varying lateral extent, only one, much more posterior than the primary fissure mentioned above, crossing the full width of the cerebellum. In the cerebella of these animals a vermis of moderate extent is distinctly to be seen in the posterior region of the cerebellum. In *Lemur albifrons* the deep transverse fissure is seen with shallower fissures anterior and posterior to it. In its posterior median portion is a well-defined middle lobe, to the right and left of which are lobes traversed by a short fissure with radiations. This intercrural fissure separates two crura or limbs of a cerebellar lobe, the *crus primum* and *crus secundum*. Many of the references to the experiments on lower animals, as on dogs and monkeys, are to the effects produced by extirpation or irritation of these parts.

Bolk, Elliot Smith and Bradley have made schema of the mammalian cerebellum. Von Bechterew adapted the schema of Bolk so as to give a general view of the functions of the cerebellum (Fig. 1).

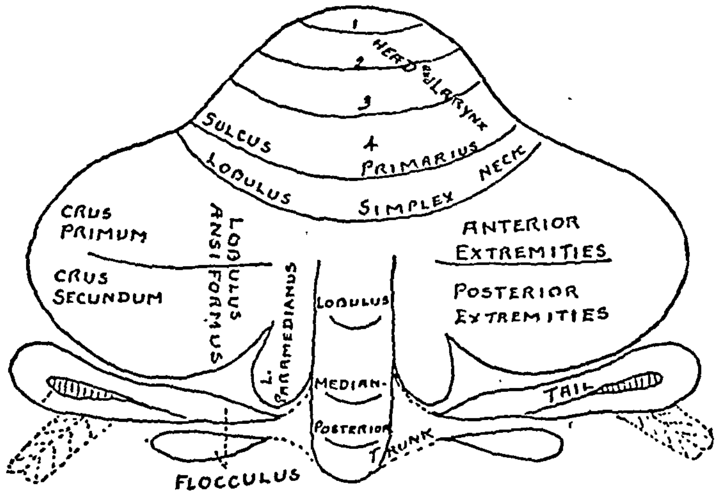


Fig. 1.—Bolk's schema of the mammalian cerebellum; on the left half the new anatomic names; on the right half the functions of special areas (Von Bechterew).

It is in the parts homologous in the human brain with the *crus primum* and its correlated vermis that the highly evolved synergic movements of the upper extremity and trunk appear to be represented, and in the *crus secundum* and its correlated median and paramedian regions the highly developed synergic movements of the lower extremity and trunk, those especially concerned with the maintenance of the erect position of man and his ability to perform complex synergic movements in this position.

In the anterior portion of the human cerebellum as in lower mammalia, movements more or less common to both them and to man—movements of the eyes, head, jaws, face and larynx—are represented, although this representation in man is of higher synergies than in lower animals. This anterior lobe is to be regarded more as a whole—as transverse or azygos—without so much reference to a separation into middle and lateral parts as has hitherto been considered essential, although the superior vermis and its wings may have subdivisions of their general representation.

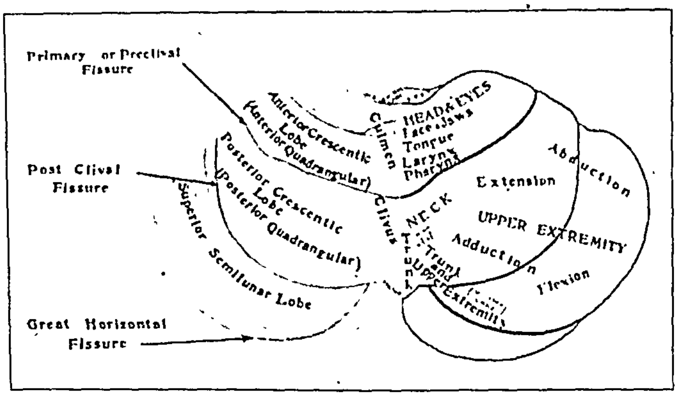


Fig. 2.—Cerebellar localization; zones and centers of the superior surface of the cerebellum.

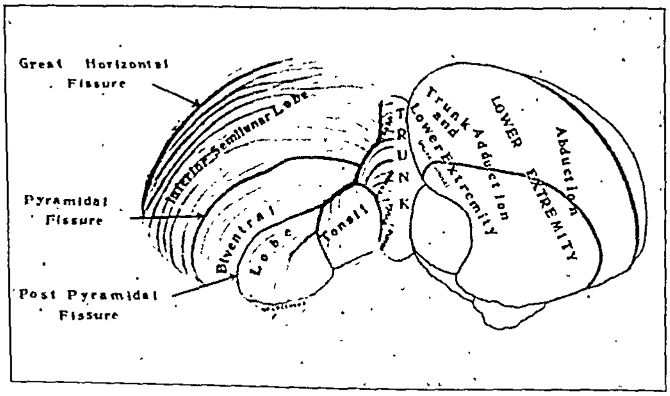


Fig. 3.—Cerebellar localization; zones and centers of the inferior surface of the cerebellum.

The demand for a complex representation of movements which are complex and elaborate has led to the tremendous development in man of that subdivision of the cerebellum which is posterior to the primary fissure.

The localization of cerebellar function and the abnormal phenomena produced by limited cerebellar lesions have been chiefly investigated by extirpation and electrical irritation. The extirpation experiments have been of varying character, sometimes decapsulation of a whole lateral lobe or of this and the vermis or of the vermis alone; and sometimes by extirpation of small areas in definite parts of the cerebellum as in the anterior lobe, in the *crus primum, crus secundum,* the posteriomedian lobe or inferior vermis, or the paramedian region.

The electrical-excitation experiments have been performed on carefully selected spots and areas of the cerebellar cortex and some observers have endeavored to isolate their irritation experiments to the deep nuclei of the cerebellum. We are in accord with Rothmann in our belief that the cerebellar cortex is excitable to the electric current, a fact which was long ago demonstrated by Ferrier and which we have confirmed in one case on a human subject. A stronger or longer-continued current seems to be required to bring about movements in the case of the cerebellar cortex than in that of the cerebral cortex, but such excitation is possible and can be more or less circumscribed.

In another communication, reviewing the neurologic contributions to the Seventeenth International Congress, one of us[2] has summarized the findings indicating special localizations by recent cerebellar experimentalists (Rothman, Prus, Adamkiewicz, Pagano, Bolk, Van Rynberk, Luna, Katzenstein and Rothmann, Bárány, and others). It is not always easy or perhaps possible to homologize the parts isolated in experiments on lower animals with divisions and subdivisions of the human cerebellum, and clinical contributions supported by necropsies have not yet been sufficiently numerous and exact to furnish absolutely dependable corroborations of the work in experimental physiology. Based on our studies of the literature of cerebellar embryology, comparative anatomy, experimentation and clinicopathology and on the results of our direct and kinematographic clinical observations, these studies in a few instances being reinforced by operations and necropsies, we have attempted a tentative schema of localization in the human cerebellar cortex (Figs. 2 and 3). It must be understood that this is regarded by us not only as tentative, but in some particulars as merely suggestive. One cannot with the same accuracy and certainty as in the case of the cerebral cortex indicate this or that region of the cerebellar cortex as exclusively concerned with the movements of the eyes, head, face, jaws, trunk, extremities or special parts of the limbs. The important fact that the cerebellum as a whole and in subdivision is concerned with synergy indicates that movements in which various parts of the body are at the same time concerned cannot be fully represented by a center or area for movements of one of these parts. The eyes may move to the right or left, or up or down without any association with other movements, but on the other hand, the eyes may move synergically with the head or with the head and trunk or with the head and trunk and limbs. The trunk may be bent forward or backward or twisted to the right or left with little or no association with movements of the extremities, but such comparatively simple trunkal movements are not the rule in bodily actions. The rôle played by the cerebellum has its best exemplifications in such acts as advancing and retiring in the erect position or in the performance of complex movements strength of the individual. The case was one in which the asynergic phenomena were expressed bilaterally, although the abnormal movements were more marked on the left and especially in the pelvic girdle.

---

[2] Mills, C. K.: Neurology at the Recent (Seventeenth) International Congress of Medicine, New York Med. Jour., 1914, xlix, No. 5.

CEREBELLAR LOCALIZATION—FOCAL SYMPTOMATOLOGY

In studying the focal symptomatology of cerebellar disease, hypermetry, adiadokocinesis and tremor at times indicate not only the presence of cerebellar asynergy, but give the clue to the part of the cerebellum most involved, as when these phenomena are most markedly exhibited in a special part of the body—the trunk, the upper or lower extremity, the head, face or eyes. These facts of localization are, we believe, emphasized by kinematographic investigations, as we have just tried to show.

The clinician soon finds that the focal symptomatology of cerebellar disease is not so easily comprehended as cerebral focal symptomatology. He recalls, however, from his experience, observations which have a bearing on this question. He has had cerebellar cases with marked unilaterality in their manifestations, indicating that one-half of this organ exerts its influence with marked predominance on one side of the body. In other cases, not on the whole numerous, ocular movements have been disordered in a way not explicable by limited lesions of parts of the brain other than cerebellum. In other instances, also not numerous, the speech of the patient is affected in a manner not to be explained merely by bulbar or cerebral involvement, while in many instances both ocular movements and speech disturbances are wanting. He has noted that in different cerebellar patients the disordered movements of the trunk differ from each other in ways which can be definitely discriminated. Shoulder girdle movements in one instance, and pelvic girdle movements in another, are more affected. The changes in emotional expression sometimes observed differ in different cases. The head takes a special attitude in a few cases; in many others this not occurring. Extraordinary combinations of abnormalities of movement may be discoverable on casual observation or elaborate investigation.

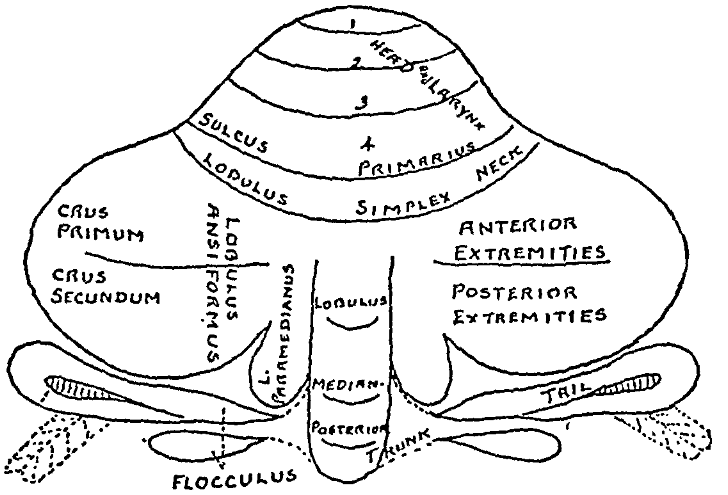


Fig. 1.—Bolk's schema of the mammalian cerebellum; on the left half the new anatomic names; on the right half the functions of special areas (Von Bechterew).

The cerebellum as a whole and all of its parts are concerned with the function of synergia. When, however, a particular part or parts of the body are the seat of abnormal motor phenomena of cerebellar origin, such manifestations are focal and more or less capable of localization. If these focal symptoms were arranged in tabular form, we would have a list something like the following:

Focal Symptoms Indicated by Localized Asynergic Movements:

Eye movements.
Attitude and movements of head.
Movements of jaw, face, tongue, larynx, etc.
 (Disturbances of speech, emotional expression, etc.).
Position and movements of trunk.
Special movements of upper extremity.
 (Disturbances in fine movements including writing).
Movements of trunk and upper extremity (shoulder-girdle movements).
Special movements of lower extremity.
Movements of trunk and lower extremity (pelvic-girdle movements).

CEREBELLAR LOCALIZATION—COMPARATIVE ANATOMY AND EXPERIMENTATION

Some of the results of embryologic and morphologic investigation of mammalian cerebella indicate the development and elaboration of function in this organ. Among those who have contributed work of great value in this direction we find some of the most distinguished names in the field of neuro-anatomy: Kölliker, Schwalbe, Elliot Smith, Bolk, Van Rynberk, Charnock Bradley and others. To the results of the investigations of some of these, Rothmann has appealed in corroboration of his own experimental and pathologic findings.

Studying the mammalian cerebellum from the lowest types to man, certain facts of paramount interest regarding the development of fissures, folia, lobules and lobes attract attention. The methods in which fissures appear, extend, recede and disappear and the horizontal and sagittal expansion of cerebellar substance go hand in hand, as in the development of the cerebrum with additions and intensifications of function.

In the lower mammals like the squirrel, the ox, the dog and the monkey, the cerebellum has a less marked subdivision into a middle lobe and lateral lobes than in man. Such subdivision appears and becomes more definite as the evolutionary series approaches man. Glancing, for example, at the dorsal aspect of a series of the cerebella of apes or their semidiagrammatic representation as given by Bolk, one deep somewhat anterior fissure usually called the *sulcus primarius* is uniformly observed traversing the entire width of the cerebellum, while above and below this are distinct fissures shallower and of varying lateral extent, only one, much more posterior than the primary fissure mentioned above, crossing the full width of the cerebellum. In the cerebella of these animals a vermis of moderate extent is distinctly to be seen in the posterior region of the cerebellum. In *Lemur albifrons* the deep transverse fissure is seen with shallower fissures anterior and posterior to it. In its posterior median portion is a well-defined middle lobe, to the right and left of which are lobes traversed by a short fissure with radiations. This intercrural fissure separates two crura or limbs of a cerebellar lobe, the *crus primum* and *crus secundum*. Many of the references to the experiments on lower animals, as on dogs and monkeys, are to the effects produced by extirpation or irritation of these parts.

Bolk, Elliot Smith and Bradley have made schema of the mammalian cerebellum. Von Bechterew adapted the schema of Bolk so as to give a general view of the functions of the cerebellum (Fig. 1).

CARCINOMA, SYPHILIS, AND TUBERCULOSIS COEXISTENT IN THE SAME PATIENT

WITH REPORT OF A CASE

ELLIS KELLERT, M.D.
Resident Physician, Huntington Memorial Hospital, Cancer Commission of Harvard University
BOSTON

The occurrence of active tuberculosis with carcinoma or of carcinoma with syphilis in the same patient is occasionally observed. We find reported in the literature many cases of lupus associated with epithelioma, and also of pulmonary tuberculosis with cancer involving the same, or some other organ, as the stomach, intestine, or liver. Much more infrequently do we see cases of carcinoma and syphilis in the one individual. The majority of these are patients in whom a malignant growth occurred at the site of leukoplakial patches. Cancer associated with syphilitic lesions of the central nervous system is not of common occurrence. The association, however, of carcinoma, tuberculosis and syphilis, each involving primarily a different organ in the same patient is apparently extremely rare. Such an occurrence is not mentioned in any of the standard works on pathology or carcinoma, and a careful search through the literature has failed to reveal a single recorded instance of a combination of these three diseases. Therefore, the following case, in which all three conditions were demonstrated during life and confirmed at the postmortem examination, is thought to be of sufficient interest to place on record.

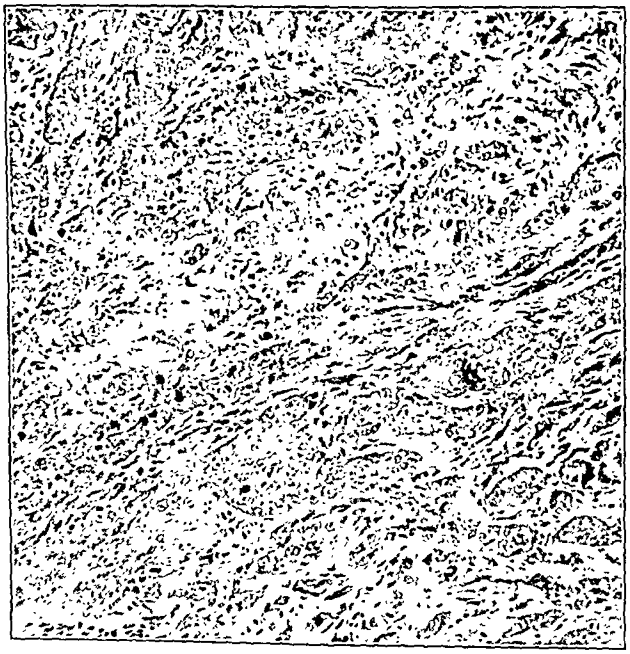


Fig. 1.—Section of tumor in pharynx. From a photomicrograph (×135)

REPORT OF CASE

Mrs. O. M. J. (Case No. C. 1. 13. 44) aged 39, housewife, born in Ireland, was referred by Dr. N. Faxon of Stoughton to the Huntington Memorial Hospital, Sept. 27, 1913, complaining chiefly of difficulty in swallowing.

Present Illness.—In July, 1910, shortly after her first confinement, patient noticed that her knees became weak. She was able to stand and walk, but had great difficulty in going up or down stairs. This condition persisted until after her second confinement in September, 1912, when she became troubled by a "sort of numb, tired feeling" in the back of her head. This came on when she sat up for the first time after parturition, lasted for three months, and then passed into the spine and rectum, where there was severe pain, frequently during the entire day. Two months ago her throat began to "fill up" and she was unable to swallow. Local treatments by a specialist afforded temporary relief. Patient states that she occasionally has chills. For the past six months she has been nauseated in the morning, but seldom vomits. Has had cough and expectoration for the past two months. Her appetite was very good until the throat symptoms appeared. Bowels have been regular, no bladder symptoms. She has lost greatly in weight.

Past History.—Patient had measles, mumps and whooping-cough during childhood, typhoid fever and malaria in later life. Menstrual history is negative, except that the periods ceased after her first injection of salvarsan. She married at the age of 33 and had two children, both alive and well, one instrumental and the other a normal delivery. Does not use alcohol and denies venereal history.

Family History.—The patient's father died of blood-poisoning, but no information was afforded concerning recent injury or other cause. Mother died of asthma. Has one sister who is alive and well. No history of tuberculosis or tumor in the family.

Physical Examination.—The patient is a slightly built, emaciated, white female adult of brunette type. The skin and mucous membranes are pale. The forehead is prominent, the nose slightly depressed. The pupils are moderately contracted and react to accommodation, but not to light. The tongue protrudes mesially, and is red at the tip and margins. The papillae are prominent. The upper teeth are false. The pharynx is deeply injected and on the posterior wall above the level of the epiglottis is seen a rounded elevated nodule approximately 0.5 cm. in diameter. Beneath this, and extending downward to the left as far as the eye can see, is an ulcer, irregular in outline, and with elevated edges. The base is covered with a grayish-yellow discharge and projecting masses of reddish tissue can be seen. On the right side of the neck, beneath the ear, is an oval-shaped firm mass 3 by 2 cm. It is adherent to the tissues beneath it. The cervical lymph-nodes are readily palpable.

The thorax is symmetrical; the ribs, clavicles and sternum are prominent. Tactile fremitus is increased over the left chest. The area of cardiac dulness is within normal limits. The apex is heard best in the fifth interspace, 8 cm. from the midsternal line. The sounds are normal. The respiratory sounds are increased throughout the chest, particularly on the left side. Posteriorly, they are bronchovesicular in character and an occasional dry râle is heard.

The abdomen is depressed, linea albicantes are present. There is no increase in the area of hepatic or splenic dulness. The kidneys are both palpable, the right somewhat movable. The inguinal lymph-nodes are readily palpable.

The knee-jerks are absent. There is no ankle-clonus, no Babinski, although the right toe is slightly suggestive. Plantar reflexes are present. The umbilical reflex is absent. The patient cannot walk unassisted. The gait is spastic and the foot is brought down flatly. The toes point outward. On standing still, she sways slightly and on closing the eyes, topples over. The pulse is rapid, regular, of low tension and vessel-wall soft.

July 19, blood-serum was obtained for a Wassermann test by her physician, Dr. N. Faxon, and a positive report was returned. July 21, 0.4 gm. of salvarsan was given intravenously and on August 15, 0.6 gm. of neosalvarsan. She reacted strongly to these injections with chills and increased temperature. The administration of potassium iodid was then begun and continued up to the time of her entrance into the hospital.

Oct. 1, 1913, a fragment of tissue removed from the throat was reported carcinoma. A Wassermann test on the blood-serum was negative. A roentgenogram of the chest showed a picture consistent with pulmonary tuberculosis. Soon afterward, acid-fast bacilli, morphologically tubercle bacilli, in large numbers were found in the sputum. Her blood-pressure varied from 80 to 95 (Tycos). The urine was not remarkable. The blood on entrance contained 12,200 white cells, 5,300,000 red cells and 90 per cent. hemoglobin. Later the white blood-cells rose to 16,800 and on October 28 dropped to 10,200 and hemoglobin to 80 per cent.

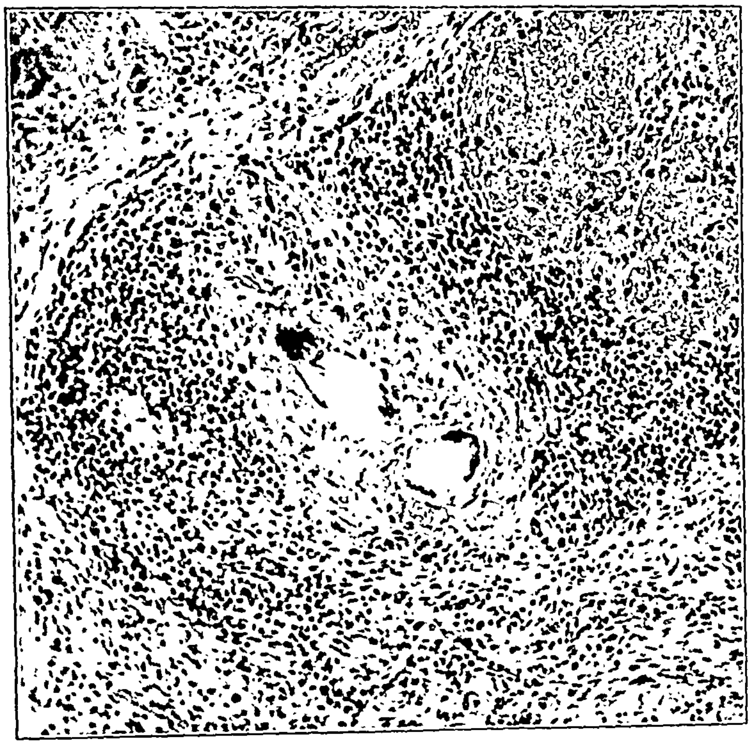


Fig. 2.—Section of tumor and tuberculous tissue from right side of neck. From a photomicrograph (X 135).

During the first part of her stay in the hospital, she improved slightly, after which her condition became progressively worse. The pulse varied between 120 and 130, the respiration from 30 to 36. The temperature ranged from 98 F. a. m. to 102 F. p. m., occasionally being so low as 97 F. in the morning and reaching 103 F. in the afternoon. Death occurred Nov. 13, 1913, preceded by several days of great weakness, increased difficulty in swallowing and cyanosis.

Post-Mortem Examination (by Drs. E. E. Tyzzer and E. Kellert).—Body length, 157 cm. Body is that of a woman, slender, well developed and markedly emaciated. Rigor mortis is present. There is a moderate degree of lividity over the posterior aspect of the body. At the anal orifice is a mass of reddish tissue 1 cm. in diameter covered with epithelium. There is a very slight degree of edema about the ankles. The outer aspect of the forearm shows a rounded scar measuring 1 cm. in diameter. The chest is depressed on both sides near the upper sternal region and the sternum shows marked bulging outward.

Peritoneal Cavity: Abdominal wall measures 3 or 4 mm. in thickness. The peritoneum is smooth. There are adhesions between the lower surface of the spleen and the transverse colon. The abdominal viscera are displaced downward. The transverse colon extends into the pelvis and is bent S-shaped on itself. The appendix is negative.

Pleural Cavities: There are numerous adhesions over the entire surface of the right lung. The left pleural cavity contains approximately 50 c.c. of yellowish-red fluid.

Heart: Weight, 240 gm. The myocardium is normal in color and consistency. The mitral valve presents several firm and non-calcified thickenings at the free edge. The coronaries are normal. The intima of the ascending aorta is smooth and without lesion.

Lungs: They are voluminous and do not collapse when chest is opened. In the posterior portion of the right lung are numerous small nodules of opaque tissue measuring 2 mm. in diameter. The smaller ones are slightly translucent. At the apex is a cavity 5 by 4 by 3 cm., which contains a thick grayish mucopurulent material. The walls are smooth and contain irregular branching bridges and trabeculae. The inferior left lobe presents, on cross-section, nodules similar to those above described. Many of these nodules are confluent and form irregular masses of opaque grayish tissue. The bronchial lymph-nodes are deeply pigmented and non-calcified.

Gastro-Intestinal Tract: In the median portion of the small intestine are two ulcerations of rounded outline. The larger measures 2 cm. in transverse diameter and 1.5 cm. longitudinally. The mucosa at the edge is elevated and irregular. On the serous surface of the intestine are minute translucent areas. The stomach and large intestine are negative.

Spleen: Weight, 118 gm. The capsule shows very minute translucent elevations. Cut surface is light-red. The trabeculae are prominent and the follicles indistinguishable. Several opaque nodules, some measuring over 1 mm. in diameter, are present.

Pancreas: Normal in size, color and consistency.

Liver: Weight, 1,180 gm. The capsule is smooth. Cut surface is of a dull chocolate-brown; the markings are not prominent. At one point there is an opalescent mass 3 mm. in diameter. The gall-bladder and bile-ducts are negative.

Adrenals: Normal in appearance.

Kidneys: Combined weight, 250 gm. The capsule strips readily, exposing a slightly torn surface. The medulla is redder than the cortex, which is pale brownish-red.

Bladder: At the neck of the bladder is an area containing greatly dilated blood-vessels and producing a bluish-red discoloration. The genitalia are not remarkable.

Aorta: Smooth appearance throughout. The retroperitoneal mesenteric lymph-glands are considerably enlarged and reddened and, in some of these, opaque areas are to be seen.

Organs of Neck: In the posterior and left lateral wall of the pharynx is an ulceration measuring 4 by 3.5 cm. The base is irregular and covered with a pale grayish exudate mingled with reddish granular elevations. Lower down, there is a small rounded mass 0.7 by 0.5 cm. and elevated 0.3 cm., also smaller translucent nodules from 2 to 4 mm. in diameter.

Bone-Marrow: Dark brownish-red and moderately firm in consistency.

Head: The frontal eminence and occipital protuberance are unusually prominent. The anterior portion of the calvarium is normal, but somewhat thick posteriorly. The base of the skull is negative.

Brain and Cord: Report by department of neuropathology No. N.-13-96. The brain weighs 1,324 gm. It is generally brachycephalic in type. The pia of the vertex is cloudy, and the pial vessels considerably injected throughout. The convolutions are fairly simple in pattern. There is no gaping of the sulci and no gross cortical lesions. The vessels of the circle of Willis show very slight stiffening, but no atheroma. One centimeter frontal section through the cerebrum and cerebellum show the corona radiata small in area. No gross lesions, except a suggestion of slight sclerosis of the arteries of the lenticular nuclei. The cord, on gross inspection, shows yellowing of the posterior columns. Sections from the cervical, dorsal and lumbar levels of the cord show a marked degeneration of the columns of Goll and Burdach. The process is more marked in the lower than in the cervical region. The posterior roots appearing in the section are almost entirely unstained. The blood-vessels, especially the arteries, show considerable thickening, particularly of the intima. There is slight loss of cells in the column of Clark. The lesion is typical of tabes dorsalis.

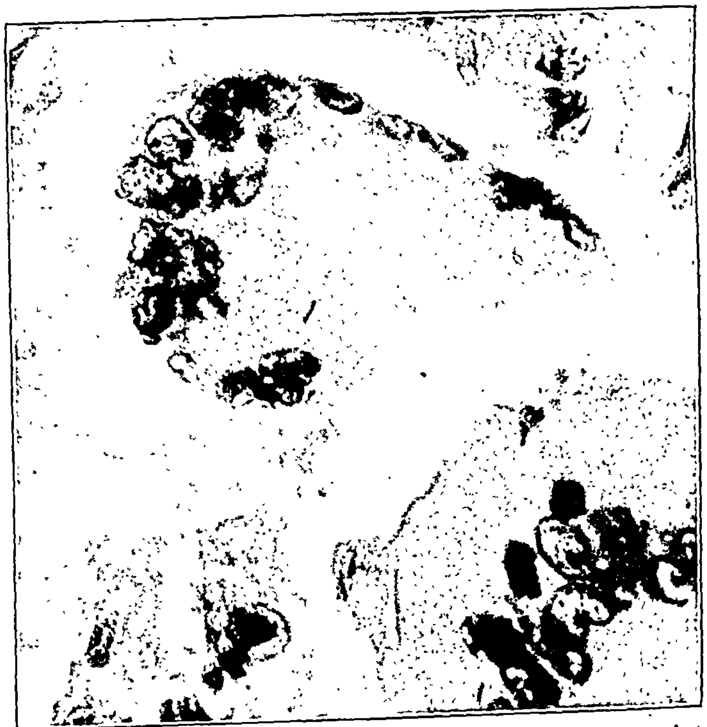


Fig. 3.—Section from tubercle shown in Figure 2. From a photomicrograph (X 1,000). Note giant cell containing tubercle bacilli.

Anatomic Diagnoses: Pulmonary tuberculosis with cavity formation; carcinoma of pharynx with metastasis to cervical lymph-node; tuberculous pleuritis with effusions; tuberculosis of lymph-node; tuberculosis of pharynx; edema of lungs; tabes dorsalis; tuberculous ulcers of small intestine; marked emaciation; external hemorrhoid; slight edema of feet.

Histology.—Pharyngeal Ulceration: Sections show an ulcerated surface covered with necrotic tissue, fibrin and bacteria. Directly beneath the ulcer are large closely packed masses of tumor epithelium which extend inward, where the tumor appears to be subdivided into smaller masses or isolated cells surrounded by dense fibrous tissue. In many of the larger masses are foci composed of pink-stained, swollen epithelial cells which are evidently necrotic. The tumor cells are large, irregularly rounded or polyhedral in shape and present a moderate amount of faint pink-staining cytoplasm. The nuclei vary considerably in size and shape but in general are large, rounded, vesicular and show one or more nucleoli or chromatic masses. Mitotic figures are present, but not numerous. The stroma appears, for the most part, dense in character and presents spindle-shaped connective-tissue cells, rare eosinophil and lymphoid cells. Blood-filled capillaries are numerous.

Enlarged Cervical Lymph-Node: A layer of tumor tissue is found enclosing the caseous interior of the mass and the whole more or less encapsulated. The capsule consists of dense fibrous and fat tissue containing nerves. Between the capsule and layer of tumor tissue is a narrow margin of lymphoidal tissue, dilated lymphatic spaces and areas of tuberculous tissue. The lymph spaces are surrounded by a supporting tissue containing but few cells. The tumor epithelium is closely associated with the tubercles, but there is no admixture of the two. The tubercles are distributed over the outer surface of the tumor tissue. Acid-fast bacilli are present.

Heart: The muscle fibers contain a moderate amount of brownish pigment situated about the nucleus.

Aorta: There is a diffuse thickening of the intima, but no calcareous deposits.

Lung: There are extensive areas of edema and caseation and many tubercles, both miliary and confluent. Some of the larger areas are surrounded by a thick connective-tissue capsule containing tuberculous tissue, frequently with giant cells. There is no calcification present. The alveoli surrounding the tuberculous tissue are filled with masses of fibrin and desquamated endothelial cells. There are numerous acid-fast bacilli present.

Small Intestine: The ulcerations involve the entire thickness of the intestinal wall. The superficial layers are composed entirely of necrotic and inflammatory tissue. Beneath this are tubercles and fragments of smooth muscle. There are very few giant cells present. The capillaries are dilated and filled with red blood-cells. Large numbers of acid-fast bacilli are present.

Liver: The hepatic cells about the central veins are in various stages of degeneration. Many are necrotic or absent. There are numerous polymorphonuclear leukocytes present. About the periphery of these areas of necrosis are columns of normal-appearing liver cells and there is a moderate degree of replacement of the hepatic tissue with fat. The sinusoids in the necrotic portions are dilated with blood-cells. There are large numbers of small tubercular areas scattered throughout the parenchyma.

Spleen: A few similar tubercles are present.

Kidney: There is a slight degree of degeneration of the tubular epithelium, and a few of the tubules contain casts.

Uterus: An occasional small blood-vessel in the myometrium shows hyaline changes, and there is moderate atrophy of the endometrium.

Lymph-Nodes: Miliary tubercles are present. The sinuses are frequently dilated and filled with desquamated endothelial cells, some of which are phagocytic for red blood-cells.

Bone-Marrow: It is not remarkable.

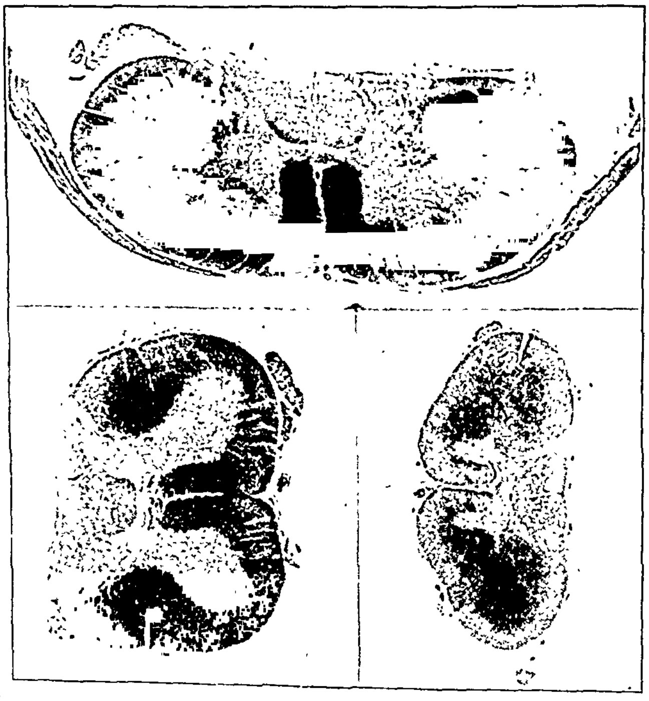


Fig. 4.—Section of spinal cord at varying levels showing degeneration of posterior columns. From a photomicrograph (× 6).

This patient, therefore, presented three distinct diseases, each involving primarily, though not confined to, a different organ—an invasive tumor primary in the pharynx with metastasis to a cervical lymph-node; an extensive bilateral pulmonary tuberculosis, and tabes dorsalis. The lesions are typical for each of these three, any one of which would ordinarily be regarded as a major disease. The origin of the syphilitic infection is somewhat obscure. The patient, an intelligent woman, most emphatically denied a venereal history. She had given birth to two normal and healthy children and did not have a miscarriage or abortion. It is stated in the family history that her father died of blood-poisoning, but further details could not be obtained. The peculiar shape of the head, the prominent frontal region, and the somewhat depressed bridge of the nose, slightly suggest congenital syphilis.

Although comparatively few cases of combined carcinoma and tuberculosis have been reported, it is doubtful if there exists between them any antagonism. Thus Bastedo,[1] who gives an excellent review of the literature, finds that there is no specific favoritism or antagonism between the two diseases; that cancer is more common among those with latent tuberculosis than among those at the cancer period of life. The common age for cancer is not the age for active tuberculosis. Moak,[2] in looking over the records of the Bender Hygienic Laboratory, found carcinoma present in 6.6 per cent. of active tuberculous cases. This percentage is rather higher than that of other observers. Lubarsch[3] found cancer present in 4.4 per cent. of active tuberculosis, and McCaskey[4] in 1.4 per cent. The latter notes that retrogression of cancer has occurred after the injection of tuberculin. Patients dying of cancer not infrequently show old scars or calcification in the apices, indicating healed tuberculosis.

An occasional observation has been made in which it was thought that a tuberculous ulcer preceded a malignant growth. Such cases have been reported, but observations of the combined conditions, cancer and tuberculosis, as of the hand (Lapeyre[5]), esophagus (Weyeneth[6]), (Corduo[7]), larynx (Beale[8]), and intestine (Dixon, Smith and Fox[9]), have been more common. Lupus and carcinoma are frequently associated, but the pathologic processes involved, in which groups of epithelial cells are isolated by the "frequent cicatrizations, place these lesions in a class by themselves" according to Bastedo.[1]

Certain observers have concluded that the tubercle bacillus and its toxins are concerned in the etiology of cancer, but the relationship is not clearly demonstrated. Dixon, Smith, and Fox,[9] after animal experimentation, convinced themselves that the tubercle bacillus and its products could stimulate epithelial structures. While it is true that an epithelial hyperplasia can be brought about by the tubercle bacillus and its products, yet there is no evidence to show that it can produce an invasive tumor. If this were true, we should expect to find cancer much more frequently associated with tuberculosis, and more common at an earlier age. Roger Williams[10] pointed out that as cancer increased, phthisis decreased.

---

[1] Bastedo, W. A.: The Association of Cancer and Tuberculosis, Med. News, 1904, p. 1165.

[2] Moak, H.: On the Occurrence of Carcinoma and Tuberculosis in the Same Organ or Tissue, Jour. Med. Research, June, 1902, p. 129.

[3] Lubarsch: Krebs und Tuberculose, Virchows Arch. f. path. Anat., 1888, cxi.

[4] McCaskey, G. W.: The Clinical Association of Cancer and Tuberculosis with Report of a Case, Am. Jour. Med. Sc., July, 1902.

[5] Lapeyre, N.: Tuberculosis Plus Cancer on Back of Hand, Presse méd., April 11, 1914.

[6] Weyeneth: Carcinoma und Tuberculose des Oesophagus, Dissert. Zurich, 1900.

[7] Corduo: Ein Fall von Krebsig—tuberculosem, Geschwür der Oesophagus, Arb. a. d. path. Inst., der Universitat Göttingen, 1893, p. 147.

[8] Beale: Cancer ou tuberculose du poumon, Jour. Laryngol., 1896, p. 36.

[9] Dixon, Smith and Fox: On Cancer and Tuberculosis, Penn. Health Bull., Harrisburg, 1911, No. 24.

Syphilis is a fairly common disease and yet its combination with carcinoma is exceedingly rare. This is indicated in the statistics gathered by Williams. He mentions the case of Turenne, who syphilized his recently operated cases, hoping thereby to prevent a recurrence of the growth. Lang,[11] on the other hand, claims to have observed syphilitic infiltrations which became converted into malignant neoplasms. He believes that the toxins of syphilis may weaken the organism which is more readily attacked by tumor growth. He also believes that cutaneous syphilitic infiltrations form a favorable soil for tubercle bacilli. We have found relatively few cancer patients who give a specific history, and Wassermann tests on their blood-serum but seldom give a positive reaction. This has been our experience at the Huntington Hospital, although varying percentages have been claimed at different clinics. Fox[12] reports a large series of cases with negative reactions. Many cases occur in which a malignant growth appears to have its origin in areas of leukoplakia.

It is always of interest to determine which lesion appeared first, and its influence on the development of subsequent affections, but only too often this is impossible. In the present case, it is apparent that the syphilitic infection must have occurred long before the active development of the other two conditions. The phthisis must have been a comparatively recent infection, for the history of loss of weight dated back but a few months. Throat symptoms developed about three months before death, so that the tumor was probably the last of the three diseases to appear.

Cases already reported and this one bring up the question of the occurrence of two or more active diseases in the same patient. We are inclined to think that it is to be found much more frequently than is commonly suspected. Thus typhoid and tuberculosis in combination are not uncommonly observed. Osler[13] found at necropsy, tuberculous lesions in 5 per cent. of typhoid cases. Yellow fever, dengue, malaria and amebiasis frequently coexist, so that individuals may harbor any two of the above infections. Recently, Strong, Tyzzer, and others[14] separated into two distinct diseases, oroya fever and verruca peruana, which had long been accepted as different manifestations of a single infection. It is not at all improbable that, in the tropics, many patients suffer from two and even three diseases. A short time ago a postmortem examination at this hospital in a case of myelogenous leukemia revealed also a tuberculous peritonitis with ascites. While the student is usually taught to make one diagnosis cover all the symptoms, the possibility of one or two other conditions being present must not be overlooked. In fact, it is unscientific not to consider the presence of more than one disease if the signs and symptoms indicate it.

In conclusion I wish to thank Dr. A. E. Taft for a thorough examination of the central nervous system and acknowledge my indebtedness to Dr. E. E. Tyzzer for assistance in the pathologic examination and report of the case.

---

[10] Williams, Roger: Twentieth Century Practice of Medicine, New York, William Wood & Co.

[11] Lang, E.: Twentieth Century Practice of Medicine, New York, William Wood & Co.

[12] Fox, F. J.: Wassermann Reaction in Cancer, Med. Rec., New York, Aug. 16, 1913.

[13] Osler, W.: Practice of Medicine, New York, D. Appleton & Co.

[14] Strong, Richard P.; Tyzzer, E. E.; Brues, Charles T.; Sellards, A. W., and Gastiaburo, J. C.: Verruca Peruana, Oroya Fever and Uta, The Journal A. M. A., Nov. 8, 1913, p. 1713.

THE RECONSTRUCTION OF THE NASAL SEPTUM AFTER THE SUBMUCOUS OPERATION*

JAMES A. BABBITT, M.D.
PHILADELPHIA

The reconstruction of the nasal septum after the submucous operation invites, first, a discussion from both the physiologic and the anatomic standpoint of the etiologic factors of nasal disturbance for which septal relief is indicated, and justification of the selection of surgical interference in the septum rather than other parts of the rhinopharyngeal tract; second, the adoption of surgical measures which will reasonably overcome the nasal disturbance with the least traumatic modification, and, third, the reestablishment of normal function in the part itself and the correction of the disturbed specialized function to which its displacement has contributed.

Succinctly stated, the consideration devolves on the three questions: For what may submucous resection be legitimately done? How can it most safely and simply be performed? How perfectly may the septum be reconstructed? Such reconstruction must include the anatomic rebuilding of a structure virtually razed to its foundation, the physiologic continuance of its general and specialized function and, finally, the relief in satisfactory measure from the conditions for which it was instituted.

The new partition must enable the septum to perform its part in the secretory, olfactory and respiratory activity of the nose, be anatomically strong enough to withstand reasonable subsequent trauma, preserve the alignment of the external nares and resist unfortunate sequelae.

Interesting results were reported by Anderson[1] from animal experimentation in obstructing the upper respiratory tract, proving that nasal obstruction leads to death or serious modification of vitality. It furthermore produces lowered resistance, predisposition to infection, local disease of the respiratory tract and associated cardiac, skin and pulmonary symptoms. He even produced asthma symptoms in the lower animals and found that reopening of the nose relieved them.

Consideration of this topic has been induced by a rather careful analysis of the procedures and subsequent results of about five hundred complete and partial submucous resections which I have performed, and by the rather fortunate opportunity, as will be later explained, of having obtained a septum specimen by secondary operation in which surgical and physiologic points of interest resulting from primary interference were well exhibited.

Obstinate catarrh, the neuroses of hay-fever or asthma, nasal stuffiness, eustachian tinnitus and sinus pressure are classical symptoms for which orthopedic correction of a deflected or nodular septum might be indicated. Here the personal equation of the specialist's examination must be severely eliminated, nor must the operator be influenced by the readiness and skill of his own preference for this operation. Surgeons subconsciously allow their minds to become focused on certain types of work, and it is difficult to escape the influence of this in their operative advice. The delicate decision as to the possibility of restoration in a middle turbinate showing early degeneration may frequently be the determining decision as to an operation on it or on the encroaching septum. A careful review of the physiology of these areas would indicate a preference for septal rather than turbinate interference.

---

* Read before the Section on Laryngology, Otology and Rhinology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

[1] Anderson: Proc. A. L. R. and O., 1909.

Mentzenbaum[2] is of the opinion that the exenteration of the turbinate destroys an important vitalizing organ in the nose, but the splendid work of Mosher and others need not be discussed here.

Phillips[3] classifies cause of septal deformities as due to congenital malformations, arrested or excessive development of the facial bones and traumatic injury, with large majority in the latter, and quotes the importance of the progressive changes due to unrecognized childhood traumatism. It is doubtless due to the insidious development of such disturbance that the many conditions indicating septum operation are suddenly revealed and apparently almost spontaneously.

As Emerson says,[4] the patient consults not for the deflection, but for the conditions which have produced unequal ingress of air, hypertrophies, contact, insufficient drainage or active infection of the sinuses of the nasopharynx. He further enumerates asthma, headaches, aprosexia, disturbance of vision, aggressive otitis media, erysipelas from the infection of the erosions, eczema of lip, recurrent bronchitis, chronic nasal pharyngitis, redness of nose, aphonia, perversion of smell and taste, dyspepsia, mechanical obstruction and catarrh as symptomatic of septal deformity.

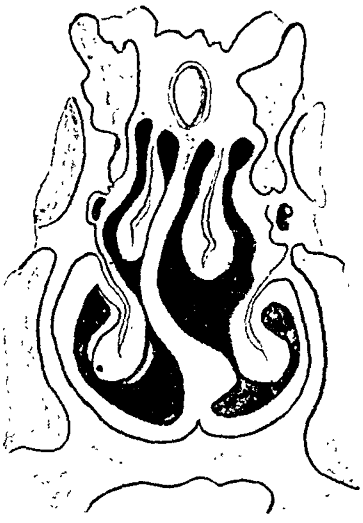


Fig. 1.—The most common type of deviation of the septum, presenting a common result of unrecognized traumatism.

To this might be added Bryant's[5] conclusions that epileptic seizures are more often due to reflex stimulus from the Schneiderian membrane to the fifth nerve than from other causes.

A most frequent indication for careful examination of the upper nasal cavity is a simple, indefinable stuffiness in that area, subjecting the patient to varying degrees of discomfort. Though indefinable, its degree of oppression is in sharp contrast to the unmeasured relief by removal of its cause. In a minor percentage of cases, hay-fever and asthma are relieved and occasionally entirely overcome if the obstruction be a sharp bulge or ridge constantly irritating the middle turbinate. Frontal and ethmoidal sinusitus, especially in those cases with recurrent attacks, have sometimes been eradicated by the correction of a markedly deformed septum. Hay-fever and asthmatic seizures, always problematic in prognosis, sometimes permanently change, and a most encouraging picture is seen in the return of normal luster to the mucous membrane.

As cited by Ballenger,[6] an irregularity of the septum *per se* should not indicate a submucous operation. The obstructive and irritative conditions present, combined with the symptoms enumerated above and obviously connected therewith, render the situation clear, though with one's tendency to become subconsciously focused in a certain type of work, possibly only a complete examination by an "all-around non-operative specialist"—if such hypothesis be possible—should determine in certain cases whether interference with the septum or the turbinate would be the more justifiable.

It is justifiable to associate ordinary postnasal catarrh with deformities in this area, especially those without adenoids, but with ridge, spur or deflection. Here must be carefully analyzed evidence of atrophic mucous membrane change, as the too-wide nasal cavity is one of dread. It might be suggested here that a careful subsequent review of patients some time after the septum operation should be instituted for possible sequelae of this sort.

A certain number of cases present a symptomatology of general defective metabolism—the stasis of gouty diathesis, sallow skin, foul breath and coated membranes. If these be associated with poor aeration of the upper respiratory passages, the obstructed nares may be a positive factor.

Richardson[7] has reviewed the connection of upper respiratory disturbance as a reflex of general body condition, counseling against undue haste for operation and early attention to dietary and hygienic reorganization, while Meyer reports treatment of ninety-three cases of nasal vasomotor disturbance by topical application for relief of dysmenorrhea.

Favorable result of septum replacement has been the experience of many of us in the relief of eustachian tinnitus, especially that associated with a posterior exostosis or hook-like projection of the vomer. The rationale of these improvements has been analyzed by many investigators, Leland[8] urging the freeing of the fossae of Rosenmüller of synechial or isolated patches of lymphoidal tissue at the onset of earache, and Norval Pierce, carrying the investigation further into the physical and physiologic factors involved in the diminished tympanic cavity, retraction and atrophic condition of the drum with ankylosis at the foot of the stapes. Changes in blood-supply with hyperemia and rarefaction of air explain the situation here and make septal replacement one of the positive elements in physiologic reconstruction.

Relief of eustachian catarrh and remodeling of the air-current with freedom through the tract of the pharyngeal tonsil area is a particularly favorable result. If we accept the theory suggested by Dr. Randall that the adenoid tonsil may be increased by obstructed nares, as well as the reverse, the change in rôle sometimes becomes explainable.

---

[2] Mentzenbaum: Cleveland Med. Jour., 1914.

[3] Phillips: Diseases of the Ear, Nose and Throat.

[4] Emerson, Francis P.: The Results of the Operation of Submucous Resection of the Septum in Private Practice, The Journal A. M. A., Oct. 22, 1910, p. 1449.

[5] Bryant, Med. Rec., New York, 1907; Boston Med. and Surg. Jour., 1911.

[6] Ballenger: Diseases of the Ear, Nose and Throat.

[7] Richardson, Charles W.: Some Suggestions in the Methods of Correcting Deflection of the Nasal Septum, The Journal A. M. A., Sept. 21, 1912, p. 1131; Proc. A. L. R. and O., 1913.

[8] Leland: Laryngoscope, 1909.

[9] Pierce, Norval: Laryngoscope, 1909.

The extensive relation of the septal tract with eye affections forces a close connection of ophthalmologic and rhinologic fields. Hilcher[10] quotes a varied field of optic conditions—rebellious headache with eye pains, accommodative asthenopia with neuroretinitis, catarrhal conjunctivitis, recurring phlyctenular keratitis and dacryocystitis—as indicating an examination for nasal obstruction, while we receive constant reference of cases for study in this tract of involvement of the optic nerve.

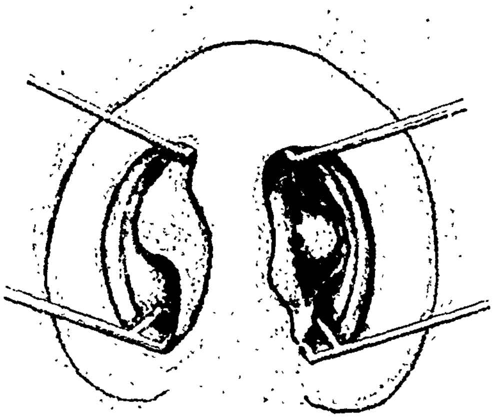


Fig. 2.—A type of deviation with a double compensatory vertical sweep.

Thus explained, the review of functional and pathologic lesions is pertinent to the topic, for their correction, as above stated, is essential to our propaganda of reconstruction.

Reverting now to the consideration of operative technic and the sequelae, positive and negative, certain localized phases of operative surgery in the rhinopharyngeal tract have become, within the past few years, most highly developed from an operative standpoint. The surgery of the nasal septum, the middle turbinate and ethmoidal sinuses, the pharyngeal orifice or the eustachian tube and the maxillary antrum have particularly shared in this progressive development—in fact, have become so specialized as to be associated with the name and procedure of certain eminent clinicians.

We may assume that those who skilfully and readily work beneath the perichondrium will elect this form of relief or its modification in preference to the varied procedures by saw, chisel, knife, electric burr and cautery.

Perhaps the most common type of deviation, presenting a frequent result of unrecognized traumatism, is shown in Figure 1, with a high bulging to the right and compensatory sweep below and overdevelopment of the ridge on the left. This simple form of deformity indicates but little explanation with the elaborate directions of Freer, Ballenger and others and the marvelous armamentarium provided therefor.

Figure 2 presents a type considerably more difficult, with a double compensatory vertical sweep, while in Figure 3, with both anterior and posterior nodular deformities, frequently invisible behind until the turbinates are well shrunken, is portrayed a type of disturbance most gratifying in its relief but frequently neglected or overlooked by the comparatively inexperienced nasal examiner.

As bewildering as the attempt at matching striped blades of oriental grass is the analysis and classification of irregular types of deviation. In the more intricate forms the assumption is justified that the skilful operator must be a mechanical expert, and I recall the ingenious suggestions of bevel saw and the button and ligature retention.

In my experience, perhaps the most successful nasal reconstruction resulted from three distinct operations: first, the removal of a vertical strip of cartilage, 3 or 4 mm. in width, from the anterior right nares to relieve the dislocated end of the triangular cartilage; then leaving a column which happened to remain in the median line, a formal submucous resection posteriorly on the left side for high compensatory bulge, and finally an external nasal operation which consisted in chiseling the nasal process of the superior maxillae on either side and swinging over an atrociously deformed external nose. The newly-constructed organ was of normal contour with evenly divided internal nares; there was restoration of the normal membrane, and a marked subsidence of eustachian symptoms which had well-nigh become organic.

In discussion of the operative technic, a successful replacement of the septum requires certain fundamental operative rules, and these are harmonious with the general principles of surgery: First, traumatism should be reduced to the minimum degree. This would mean an incision involving the simplest linear space. An increasing tendency in all general surgery would seem, that of allowing sufficient room for careful observation, and the suggestions of Yankauer, Butt[11] and others for continuing this incision well over the angle of the floor is compatible with safety. Such an incision should be thoroughly carried to the cartilage. To the experienced operator, the feel of the knife will be a guide to the depth of the incision, as slight grooving in the cartilage can do no harm and emphasizes the depth.

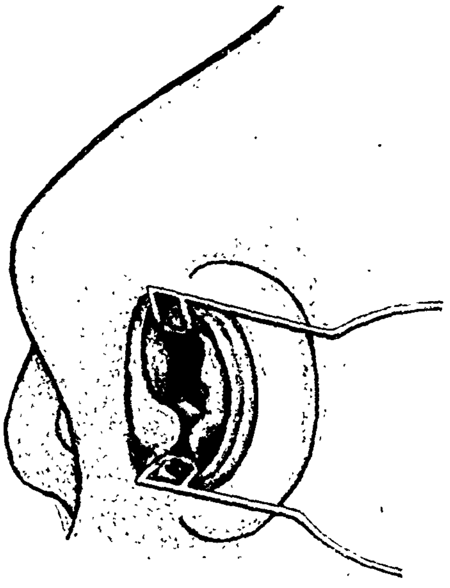


Fig. 3.—A type of deviation with both anterior and posterior nodular deformities.

---

[10] Hilcher: Northwest Med., 1909.

[11] Butt: Med. Times, Laryng., 1912.

The important circulatory channels, even though nasal anastomosis is most kindly, should be preserved and delicate nerve fibrils in the mucous membrane retained. The extent of operation, while only absolutely completed, as Freer[12] suggests, with all vestiges of bone deviation removed, should nevertheless not pass to the point of requiring unnecessary supportive splint pressure. A patient's recuperative condition must be considered, his limit of shock should be appreciated, the possible devitalizing of tissues from excessive topical shrinking, and anesthesia must be kept within bounds; while hemorrhage, apparently alarming, is really inconsequential. In comparison with other major operations, it cannot be of advantage to wound vessels and bony structure to the extent of causing copious bleeding.

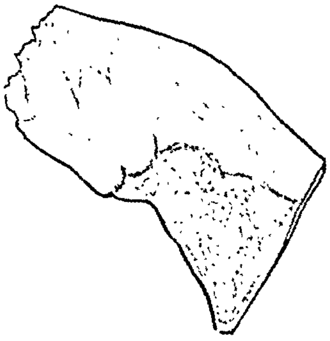


Fig. 4.—Portion of septum containing the segment from the posterior smooth end of which the section (Fig. 5) was taken.

In order to fulfil these conditions, I am inclined here to follow my custom in tonsillar operation and reduce the instrumentarium to the minimum. While most elaborate and ingenious instruments have been devised for meeting the varied forms of all angular exudancy and distortion, few septal operations really require more than half a dozen well-selected instruments, and this selection is designed to be compatible with the after-results required.

Freer's half-round-bladed septum knife, double-ended separator and reinforced edge retractor, Ballenger's swivel knife, Brünig's forceps for the perpendicular plate of the ethmoid and vomer, Schwartz' chisel for anterior ridge and Watson's small nasal speculum would complete an outfit and serve in everything but an exceptional case.

I am accustomed to use a simple septal knife, then a double-sided spatula of Freer, using the dull end to lift the membrane, then sliding the sharp end of the spatula obliquely through the cartilage, which I have not once perforated since the adoption of this method. The operation is then carried backward with gradual lifting of both perichondrium and periosteum, completing the *first* step as near to the floor and anterior and posterior extremities as possible, and leaving a smooth, ungrooved field.

It seems unimportant, with such carefully exposed field, whether Ballenger's swivel knife, or Brünig's forceps, or other means be used for removing triangular cartilage, perpendicular plate of the ethmoid and upper part of the vomer. Many authors have urged the rocking or bending of the septum. The adjacent portions of the vomer or ridge swing thus into place, if there be not too much redundancy of tissue. The small chisel for the anterior portion, and Brünig's forceps for the posterior will adequately lift out difficult portions, and it is important in the alignment of the septum, though perhaps not absolutely necessary, that the complete anterior projecting end should be removed, and particularly the deflected hook or exostosis posteriorly. Operatively, this procedure leaves a clean and comparatively uninjured operative field.

For the successful reconstruction of the septum, other points must be noted. The parts must be perfectly adjusted to secure primary coaptation and to prevent serous infiltration and hematoma. Angular incisions leave an extra granulating surface and a difficulty in the proximation of the folds. To prevent serous or hemorrhagic infiltration, a posterior point of drainage, as suggested by Butt and others, may advisably be made, well back between the folds of periosteum, as it can do no harm and stops a distressing complication with possible subsequent infection. The blood-vessels and delicate structures of the mucous membrane are then left in practically normal condition. The delay in secondary anastomoses is avoided if a minimum traumatism occurs.

Iglauer[13] suggests transplanting various substances to replace lost septal tissue, perforations, etc.—fat, skin, cartilage, bone, and other substances were investigated. This is not successful, hence, the importance of avoiding a gap and thus the necessity of replacing tissue, by leaving at least one perfect lateral surface of subsequent repair.

The operative sequelae of positive and negative type are nearly equal in number. The subjective relief of the patient, first, from his nasal stuffiness and associated irritation, and second the freedom from locked-up degenerated secretion are perhaps most consequential.

Alleviation of eye-strain and headache, relief of accompanying eustachian catarrh, and comfort to the nasopharynx from a remodeled air-current, are complements of the foregoing. The sinuses drain more freely and normally, their capacity as resonating chambers is improved, and slight colds do not irritate as before.

The work on the septum is capable of such careful analysis that accidents can in most cases be directly traced to faulty technic, which occurs here as in other forms of surgical interference.

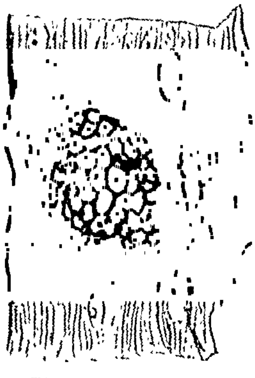


Fig. 5.—Slide showing fibrous tissue interspersed with vascular spaces, a certain amount of granular tissue and a well-formed nest of young, growing cartilage-cells.

Squamous epithelium replaces normal columnar epithelium in event of open cartilaginous granulation and gives rise to the constant irritating crusting, even without perforation. Perfect coaptation of the wound frequently leaves a scar which is almost invisible.

The surface of the mucous membrane again becomes abnormally thickened and perhaps permanently hypertrophied from the undue traumatic pressure of excessive or unguarded splints. Whether the bismuth paste of Beck, the Cargile or other membrane-covered splints of others, or simple bismuth rubber strips of gauze (demonstrated to me by Fisher) are used, the result is perhaps nearly equal, if undue pressure be avoided. One cannot accept the belief that a degenerated slough, even though protective, can fail to produce deterioration to mucous membrane when present. I have not found it advisable to leave the cavity without splints, but I have obtained excellent results by covering them with thin rubber tissue, which facilitates removal and seldom leaves excoriation.

---

[12] Freer, Otto T.: The Nasal Septum; A Description of the Author's Present Manner of Performing the Window Resection for Deflections, The Journal A. M. A., Sept. 30, 1905, p. 985.

[13] Iglauer: Tr. Proc. A. L. R. and O., 1913.

Packard[14] has reviewed the accidents and complications following operative procedures, quoting Lermoyez' classification as those of infectious, nervous and mechanical origin and in the nervous group widespread disturbance from simple neuralgias, vertigo, etc., even to asthma, laryngeal spasm and exophthalmic goiter.

It seems to have been the experience of those who have done considerable submucous work that it is best to adopt this procedure in practically every septal case. It is logical to assume that the preservation of a normal membrane is infinitely preferable to replacement of other tissue, and that a normal membrane with the slightest opening presents the smallest avenue for entrance of infection.

The most important point in diagnosis is to determine what is functional and what organic septal abnormality and, having determined the organic deviation, to form correct judgment as to the sequence of physiologic events in surrounding nasal and postnasal chambers.

Careful determination should be made as to the integrity of the mucous membrane, and if one side of the septum be sclerotic and thinned from previous erosion, as to whether the opposite membrane has sufficient vitality to form a safe retaining wall after operation.

After the suggestion of Roe,[15] the character of the external nose must be considered under these conditions: the firmness, the tip of the anterior nares, the degree of droop in the lateral folds, the type of fullness or aquilinity in external appearance, and the relation of the deflecting bulge to the outlets of the accessory sinuses.

Secondary injury to sinus or eustachian tube is usually due to locking infective secretions behind the deviation. I would make an especial plea for one particular procedure—beyond simple salt solution, antiseptics should be avoided in the nose at or near the operative period. In the Children's Hospital, it has been the custom to leave tonsils without interference after the operation, and the results have been uniformly as favorable as with other methods. The nasal secretion is naturally protective, and I deprecate the destruction of such secretion by either excessive washing or application of any active chemical solution whatever.

No traumatism, no undue pressure, complete removal of offending deviating structure, and avoidance of destruction of the natural resistance of the nose thus would seem to be the cardinal features in reconstructing a normal nose.

Believing that findings of any positive value should be recorded in contemporary literature for the sake of mutual benefit, I selected the topic of this paper in part as a vehicle to present the following rather interesting opportunity for study.

Figures 4 and 5 show a reproduction, first, of the septum containing the segment from the posterior smooth end of which the section was taken, and second, a reproduction of a slide showing fibrous tissue interspersed with vascular spaces, a certain amount of granular tissue and a well-formed nest of young growing cartilage-cells.

This particular patient presented himself about a year ago suffering from hay-fever neurosis of marked degree; examination of the posterior nasal cavity revealed too close propinquity of the septum and the lower portion of the middle turbinate. Submucous resection was advised and arranged for the following September and rather fortunately assistance was rendered by a careful student of septal surgery, Dr. Butt.

In separating the perichondrium posteriorly, a peculiar leathery resistance was found—a feeling resembling that of pressing on chamois-skin. This tissue doubled up somewhat but was fully and successfully separated, and a large segment of the cartilaginous septum removed. Comment was made by those engaged in the operation on the unusual folded feeling, but no other great difficulty was experienced even over the cartilaginous borders, and the inner surface of the perichondrium did not seem abnormal. The patient gave a history of having undergone a nasal operation by a specialist in western New York about two years previously, but he was somewhat doubtful about its nature.

The specimen, as portrayed in Figure 4, showed a smaller fibrous arc of reformed septum within the larger segment, forcing the conclusion that a successful submucous operation, though an insufficient one, had been done previously. The posterior hook-like end of the vomer also continued to cause disturbance. This specimen placed in weak formaldehyd solution and later in alcohol hardened into firm septum, and, on cross-section, as in Figure 5, revealed a well-formed nest of cartilage-cells, some evidence of reforming blood-vessels and a very firm union of the fibrous tissue and the adjacent portions of the cartilage.

Several points of interest arose from this demonstration: First, it was possible a second time to lift the perichondrium, probably a silent testimonial to the skill of the previous worker, and it was possible even to remove this adequately from the junction lines of the repaired and permanent septum. Second, the circulation in and around the septum seems to have been quite adequately restored, and the mucous membrane did not indicate the fact of a previous submucous operation. Third, the body of the repaired tissue was a dense fibrous stroma with occasional interspaces, perhaps circulatory, and containing this nest of growing cartilage-cells. Fourth, the consistency and strength of the septum seemed thoroughly adequate under all manipulative measures prior to the operation.

The question arises as to the reformation of cartilage growth. After careful examination and discussion with various physicians, I have come to believe that the cartilage is probably due to accidental growth and possibly a portion of cartilage left, though showing no bulging. The picture, however, presented both intranasally and subperichondrially and even after removal was that of a perfectly restored septum, somewhat thinner and more pliable than the original. My conclusion is in conformity with evidence repeatedly indicated, that cartilage itself does not reform. The weight of evidence in favor of the reassumption of anatomic and physiologic integrity is, however, most satisfactory.

CONCLUSIONS

1. A submucous resection, properly and completely done, will reconstruct a perfect, functional septum.

2. If a careful superior margin be left, even with scant anterior and posterior sthenic removal, the align-

---

[14] Packard: Diseases of the Nose and Throat.

[15] Roe: Med. Rec., New York, 1905.

ment in the nose externally and internally will be satisfactory and adequate.

3. If the bulging extremities of the nasal tubercles, ridge, and vomer, when obstructing the nares, are not relieved, the result of the operation is unsatisfactory to the patient.

4. The removal of posterior pressure is more important than a harmonious anterior picture, and unequal space in front does not necessarily disturb respiratory and drainage functions.

5. Fresh anastomoses will restore obliterated vessels to the extent of presenting a normal vascular septum if traumatism has not been unreasonable.

6. Areas in which mucous tissues are lost and replaced by squamous epithelium will probably crust, allow occasional intermittent hemorrhage and irritate the nose.

7. Perforations may be avoided if at least one firm side of mucous membrane is allowed to remain intact.

8. In soft, collapsible roof and sides a greater margin of cartilaginous and bony ring should be left to support the flexible nose and prevent drooping.

9. Drainage and perforation posteriorly will not injure the nose and will prevent exudate and hematoma of the septum.

10. Pressure of pads and splints should be avoided by protection of their surfaces and adequate judgment as to amount easily tolerated.

11. Reflex and other symptoms associated with the indication for operation will gradually disappear completely in a large percentage of cases.

12. Submucous removal is the method of preference for all septal procedures, and when carefully and completely performed may afford immeasurable relief.

13. The natural secretion of the nose will prove sufficient for postoperative antisepsis.

14. The new fibrous replaced septum bears approximately the same relation to the perichondrium and periosteum as before.

15. There is no evidence that the softer reorganized septum carries any functional disadvantage, even in its vasomotor relations.

1901 Chestnut Street.

Truth-Telling by Physicians.—Everyone makes mistakes, and on this account if on no other, in the practice of such an inexact science as medicine, a proper humility as to our ability to forecast the future is becoming in members of the profession. The effect of truth—given that it is the truth—on suffering humanity is to be reckoned with in a discussion of the advisability of communicating medical facts to patients. The wise physician realizes that human nature is most diverse in its aspects; he takes into account the greatest number of the traits of character of his patients; he is more often taciturn than talkative; he thinks twice before speaking the truth.—*Boston Med. and Surg. Jour.*

VALUE OF ROENTGENOGRAPHY IN DIAGNOSIS OF DISEASES OF LARYNX AND TRACHEA*

SAMUEL IGLAUER, M.D.
Associate Professor of Otology, Ohio-Miami Medical College, University of Cincinnati
CINCINNATI

The Roentgen rays have proved to be a great aid to the rhinologist and otologist in the diagnosis of diseases of the accessory cavities of the nose, and in the study of the pathology of the mastoid region. In the field of laryngology, on the other hand, the Roentgen rays have been employed chiefly for the study of the development (ossification) and physiology of the larynx. The very complete atlas issued by Thost[1] of Hamburg in 1913 represents the first systematic attempts to study the pathology of the larynx by means of the Roentgen rays.

PHYSIOLOGY

In the domain of physiology the Roentgen rays have demonstrated some interesting facts concerning certain functions of the larynx. Thus the long-debated question as to whether the cricothyroid muscles act as depressors of the thyroid cartilages or as elevators of the cricoid has been definitely settled in favor of the latter by the studies of Moeller and Fischer.[2] The various positions assumed by the lips, tongue, soft palate and larynx during phonation have been accurately determined by the beautiful roentgenograms of Scheier.[3] More remarkable than these are his[4] Roentgen studies of deglutition, in which he was able to portray the position of the bismuth mass in the fractional part of a second required for it to pass the larynx. According to Thost,[1] roentgenography will demonstrate the well-developed muscular apparatus in the larynges of professional singers.

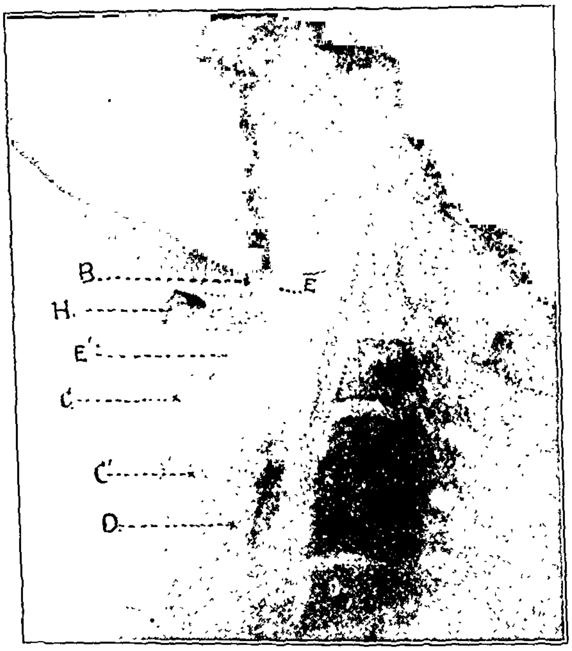


Fig. 1.—Normal larynx of a man, aged 45; *H*, body of hyoid bone. *B*, base of tongue; *E*, *E'*, epiglottis. *C*, *C'*, markedly ossified thyroid cartilage; note the ascending and descending horns of same. *D*, cricoid cartilage. The lumen of the trachea, larynx and pharynx are well delineated.

OSSIFICATION OF THE LARYNX

The Roentgen rays are particularly valuable for the study of the normal process of ossification of the laryngeal cartilages, and in order to appreciate some of the pathologic conditions of the larynx it is important that we should be familiar with the usual course of ossification. According to Scheier[5] and Fraenkel,[6] ossification usually begins during the eighteenth or nineteenth year of life, and in both sexes is first noted in the lower part of the posterior border of the thyroid cartilages. From this region it gradually ascends along the posterior border. Ossification then gradually extends forward along the inferior border of the thyroid, giving rise to an L-shaped mass of bone.

---

* Read before the Section on Laryngology, Otology and Rhinology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

[1] Thost, A.: Archiv und Atlas der normalen und kranke Kehlkopf des Lebenden im Roentgenbild, Fortschr. a. d. Geb. d. Röntgenstrahlen, 1913.

[2] Moeller and Fischer: Arch. f. Laryngol. u. Rhinol., *1903*, xv.

[3] Scheier, M.: Arch. f. Laryngol. u. Rhinol., 1909, xxii, No. 2.

[4] Scheier, M.: Zur Physiologie des Schluckakts, Schäfer-Passow Beitr., 1911, iv, Nos. 1 and 2.

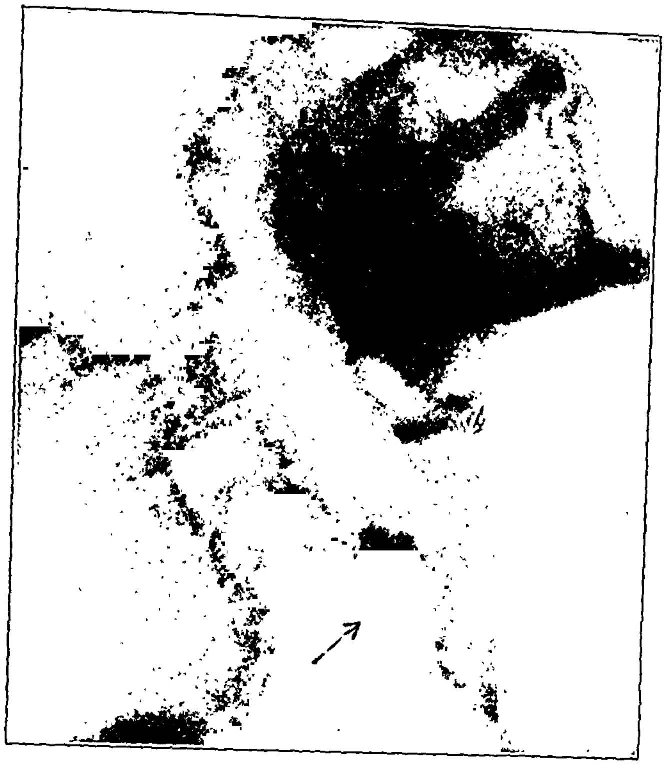


Fig. 2.—Marked ossification of thyroid cartilage in a man aged 50. Note sharp outline of the epiglottis. Upper arrow rests on the body of the hyoid bone.

In the male, a new center arises at the inferior thyroid notch and another along the superior thyroid border, and by the gradual coalescence of all these centers the cartilage eventually may be completely surrounded by a bony frame (after the fortieth year). See Figs. 1 and 2.

In the female the same process may occasionally occur, but more characteristic for this sex is the freedom from ossification in the anterior portions of the thyroid wings.

An oblique bony line dividing the thyroid into two islands is common in the male, but practically always absent in the female.

In the cricoid the process begins in the seal portion and gradually extends forward into the ring portion of the cartilage.

The arytenoids are next in order and the tracheal rings are among the last to show signs of ossification. Roentgenoscopy has proved that ossification may also occur in the epiglottis.

TECHNIC

Roentgenography of the larynx in the living is easily carried out. The patient sits on a chair or lies on a couch with the plate (8 by 10) in contact with the side of the neck and parallel to the median plane of the body. The patient is instructed to hold his breath and not to swallow during the exposure, which requires about six seconds. A profile picture of the larynx is thus obtained with one side of the larynx superimposed on the other, but the side in contact with the plate comes out very distinctly.

All the roentgenograms which form the basis of this paper were taken for me by Dr. Sidney Lange, to whom I am greatly indebted, and who in another paper will more fully describe the technic.

THE NORMAL LARYNX IN THE ROENTGENOGRAM

The roentgenogram reveals the following structures (Fig. 1):

The horse-shoe shaped hyoid (*H*) bone and its two processes stand out sharply, as does the base of the tongue (*B*). The epiglottis (*E*) can be seen projecting between the wings of the hyoid bone. The thyroid cartilage (*C*, *C'*) more or less ossified, is very prominent, while the cricoid (*D*) is covered to some extent by the descending horns of the thyroid. The ventricle of Morgagni is frequently outlined as an oval clearer space in the anterior portion of the thyroid. The arytenoids and aryepiglottic folds and the cricothyroid space can be distinguished. The lumen of the larynx appears distinctly as a lighter area continuous below with the well-defined lumen of the trachea in which the rings, when ossified, stand out distinctly. Before ossification occurs the cartilages are not well delineated, but the air-passages themselves stand out sharply and distinctly in the roentgenogram. (See Fig. 5).

TUBERCULOSIS OF THE LARYNX

Quite characteristic for the roentgenogram of this disease is a peculiar hazy indistinct outline of the laryngeal cartilages, giving the impression of an over-exposed picture. This type of picture recurs so frequently with the tuberculous larynx that it has great value from a diagnostic point of view. It indicates very clearly that the tuberculous process is not confined to the lining mucosa of the larynx, but that

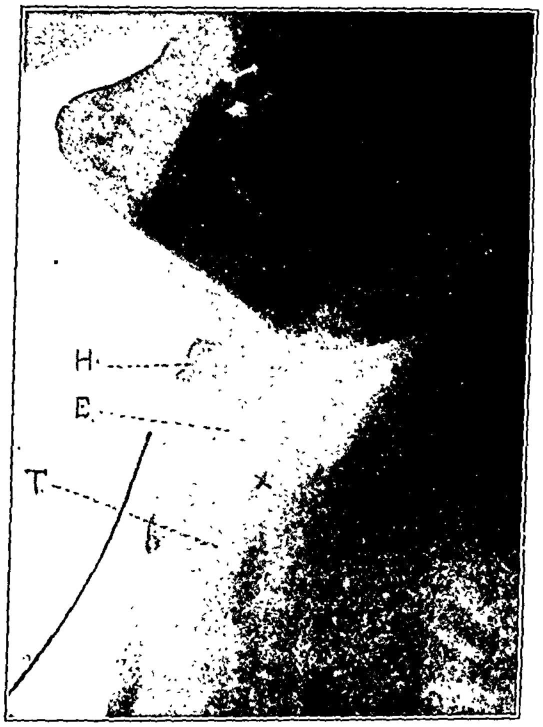


Fig. 3.—Tuberculosis of larynx in a man aged 33, with advanced pulmonary tuberculosis. Subcutaneous tuberculous (?) fistula, containing probe in front of thyroid cartilage. Infiltration of aryepiglottis folds demonstrated at *X*. Hazy appearance of *T*, thyroid cartilage, that is, resorption of lime-salts characteristic for laryngeal tuberculosis. Note dense center of ossification in anterior unaffected portion. *H*, *hyoid bone, and E, epiglottis well delineated. Note lumen of larynx* and trachea.

---

[5] Scheier, M.: Ueber die Ossifikation des Kehlkopfes, Arch. f. mikr. Anat. u. Entwicklungsgeschichte, *1901*, *lix*; Schäfer-Passow Beitr., 1910, iii, No. 4.

[6] Fraenkel, E.: Fortschr. a. d. Geb. d. Roentgenstrahlen, 1908, xii, 152.

changes occur in the underlying cartilage associated with the resorption of bone. This is distinctly analogous to rarefying changes so frequently noted in roentgenograms of the long bones when the joints are the seat of tuberculous disease. In addition to the changes in the cartilage the infiltration of the soft parts, such as the aryfolds, stand out distinctly. Defects or infiltration of the epiglottis give characteristic pictures.

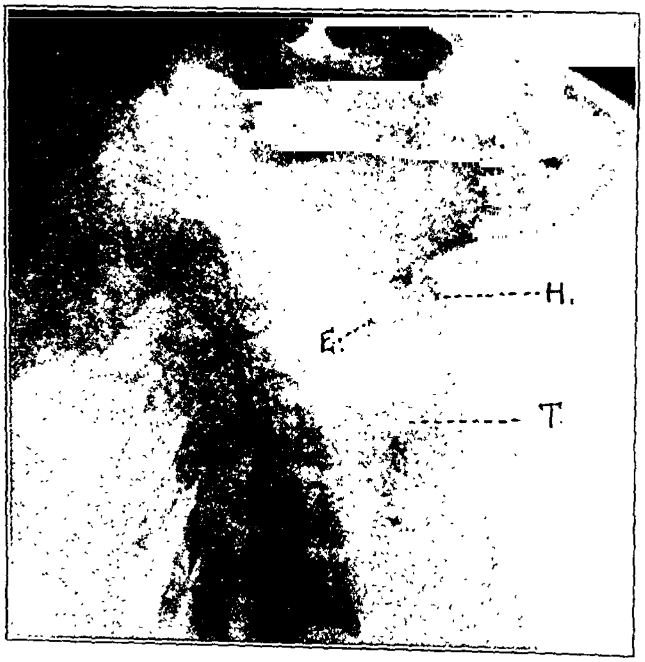


Fig. 4.—Case of carcinoma of hypopharynx in a woman aged 40. The peculiar punched-out appearance of the thyroid cartilage, *T*, is regarded by Thost as characteristic (?) for carcinomatous invasion of the thyroid cartilage from the pharynx (see text). *H*, the hyoid bone, *E*, epiglottis and the laryngotracheal lumen clearly delineated.

Roentgenography offers another demonstration of the fact that tuberculous lesions are almost always more extensive than the image in the laryngeal mirror would indicate. (Fig. 3).

SYPHILIS

In contrast to tuberculosis, tertiary syphilis of the larynx is usually associated with a tendency to proliferation rather than to resorption of bone. The roentgenograms in syphilis, therefore, give sharp distinct pictures of the ossified portions of the larynx (Thost). Infiltration or defects in the soft parts may also be made out. In the roentgenogram of a healed case coming under my observation a peculiar cavity, probably due to a former necrosis, is seen above the thyroid cartilage. In another healed case of laryngeal and pharyngeal syphilis associated with the formation of dense cicatrices in the pharynx, the distortion of the lumen of the larynx by cicatricial traction is very well demonstrated.

In doubtful cases, roentgenography should be of considerable value in demonstrating syphilitic perichondritis and in differentiating syphilis from tuberculosis.

CARCINOMA

Carcinoma of the larynx usually occurs in the ossified larynx of the aged, and this tends to obscure intralaryngeal tumors. Nevertheless, a massive tumor can often be made out, and if the lumen be encroached on, the narrowed air-passage can be seen. Tumors of the epiglottis or aryfolds are more readily delineated. In carcinoma of the hypopharynx, with secondary involvement of the larynx, Thost describes roentgenograms with a sieve-like appearance of the thyroid cartilage which he attributes to carcinomatous invasion of the ossified cartilage. Since the same picture may occur in normal larynges, however, and since I have not found it in any of the four intralaryngeal cancers which have been roentgenographed, and but once in three cases of carcinoma of the pharynx, it seems to me that he has overestimated the importance of these findings. (Fig. 4).

STENOSES OF THE LARYNX

In obstruction of the larynx or trachea by foreign bodies, or by tumors or cicatrices within the air-tract, or by compression from without, very interesting roentgenograms can often be obtained. The tumor is often visible and the narrowed lumen appears distinctly.

In one of my cases of papilloma, which required tracheotomy, the roentgenogram shows the entire lumen obliterated above the tracheotomy tube. In a second case of stenosis due to cicatrization following intubation and tracheotomy for diphtheria, the roentgenogram, taken for control, showed a complete restoration of the lumen after treatment.

Roentgenography demonstrates very beautifully the deposits of lime-salts which so frequently occur when the laryngeal or tracheal cartilages have been incised. Thus in a patient who has worn a tracheal cannula for seven years the fistula from the skin to the trachea is completely encased in calcified tissue (Fig. 6).

Considering the difficulties often encountered in examining cases of stenosis by the direct method, a preliminary roentgenogram should often prove to be a great aid to the laryngologist. This is especially true of foreign-body cases, or in cases of aneurysm, goiter or enlarged thymus. (Fig. 5).

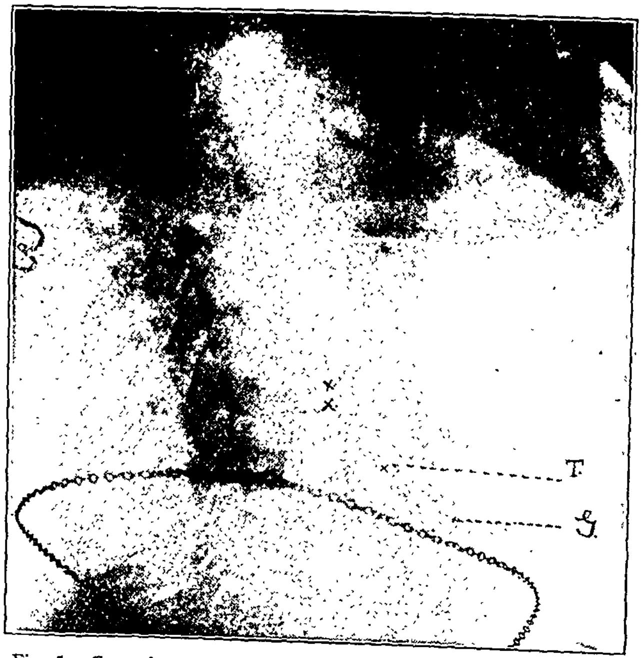


Fig. 5.—*G*, moderate-sized goiter, showing its relation to the trachea, *T*, in a girl aged 19. At *X*, *X*, slight ossification in posterior portion of thyroid cartilage. Air-passages delineated by clear zone.

RARE DISEASES AND FRACTURES OF THE LARYNX

In addition to the diseases described above, Thost has made interesting Roentgen studies of the gouty larynx and of pemphigus of the larynx. In certain so-called nervous lesions of the throat, he has demonstrated on the bodies of some of the cervical vertebrae new-formed spines and ridges to which he attributes the "nervous" symptoms.

In a limited number of cases, I have fractured the larynges in cadavers and have then had roentgenograms taken. In each instance fracture-lines can be demonstrated (Fig. 7). I hope to be able to report more fully on this particular subject at some future time.

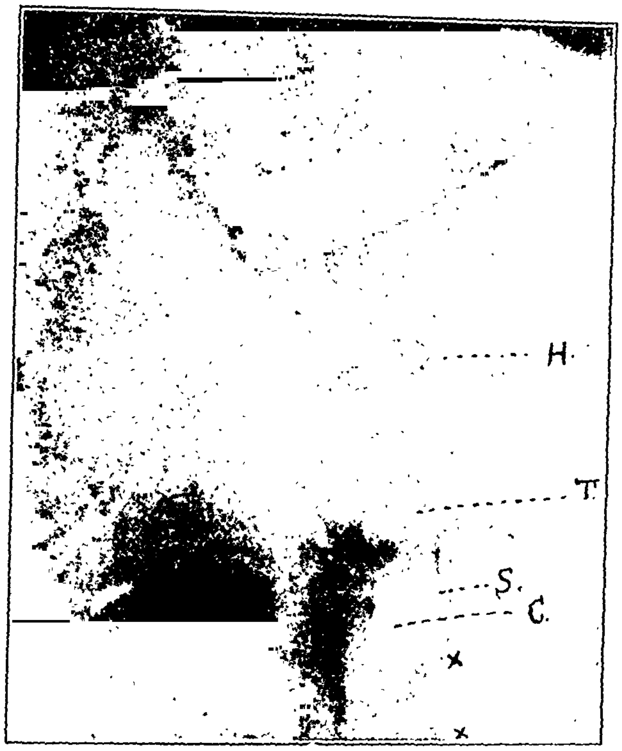


Fig. 6.—Calcified tissue at *X*, *X*, encasing a tracheotomy fistula in a patient who has worn a tracheotomy tube for seven years. *C*, the cricoid cartilage. *S*, cricothyroid space. *T*, the ossified thyroid with its inferior and superior horns. *H*, the hyoid bone, and the epiglottis, are well delineated.

CONCLUSIONS

Satisfactory diagnoses of diseases of the larynx and trachea can usually be made by the ordinary method of examination, but our observations for the most part are limited to a study of the changes in the lining mucous membrane and give no certain information concerning the changes in its underlying and adjacent structures.

The Roentgen examination gives additional information concerning the pathologic changes in the underlying cartilages, which are more or less involved whenever the laryngeal mucous membrane is the seat of a chronic disease process, such as tuberculosis or syphilis.

In stenosis or distortion of the lumen of the larynx or the trachea, roentgenography usually reveals the seat, the nature and the extent of the lesion. The knowledge thus gained before operative procedures are undertaken on the larynx is of great value. Roentgenography also enables us to study the effects of operation and the position of tubes, etc.

Owing to the ease with which it is carried out, the Roentgen method is of a special value in the examination of children or nervous patients.

In concluding I wish to express my appreciation of the kindness of Drs. A. B. Thrasher, S. E. Allen and William Mithoefer in placing some of their patients at my disposal for Roentgen study.

22 West Seventh Street.

ABSTRACT OF DISCUSSION

Dr. G. E. Pfahler, Philadelphia: The more or less new work done by Dr. Iglauer in the diagnosis of disease in the larynx opens up a new field in which I am sure we will make progress. We have all seen these things, but most of us have failed to interpret them properly, but with this aid we will certainly make rapid advances in this respect. I have not made much attempt to diagnose diseases of the larynx. In my studies of the larynx and neck I have seen some of these changes but did not interpret them properly. Dr. Skillern and I presented a paper on sphenoidal disease three years ago and the more I use the method and the more I study these sinuses, the more I am convinced of the value of this work. The two sphenoid outlines can be compared directly and if looked at as a whole one stands out more clearly than the other and the definite outline of the sphenoid can be noted in nearly every one of the plates. We should be just as careful in interpreting the sphenoid sinuses as the others.

Dr. P. M. Hickey, Detroit: The work that has been shown this morning in the differentiation of soft tissue details would be accentuated by the recent improvements which are coming out in the ability of the roentgenologist to control the performance of his tubes. We have been missing the soft tissue details because we have not been able to control accurately the performance of the tube. We have used the three gradations, hard, medium and soft, with no exact means of differentiation. The late improvements which some of the roentgenologists have placed at our disposal, in getting exact regulation of the tubes for soft tissue details, will enable us to make greater progress along this line. One thing about the trachea is the importance of the outline in the anteroposterior position, with the plate against the chest, of substernal thyroid, where perhaps there is no visible tumor on the outside, and yet where compression of the trachea can be beautifully demonstrated on the plate.

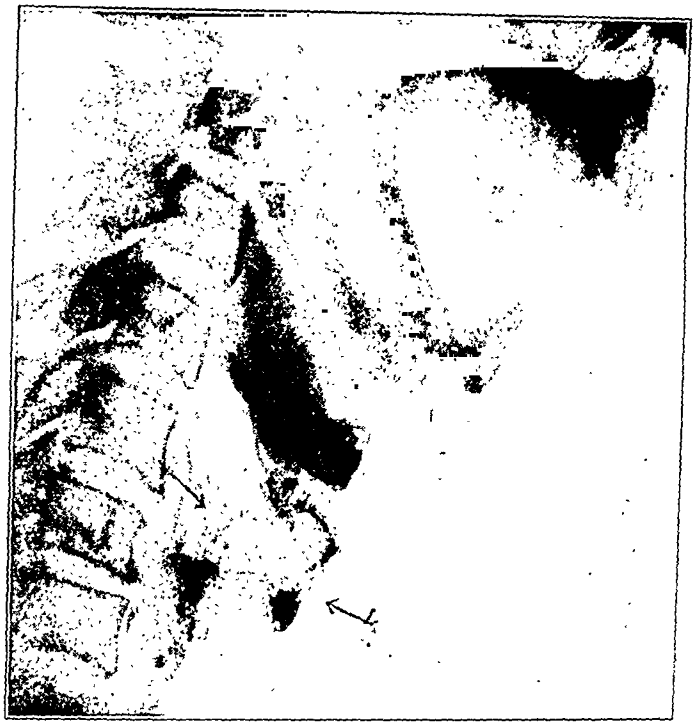


Fig. 7.—Fractured larynx in cadaver of a man aged 69.

Dr. E. W. Caldwell, New York: Will Dr. Iglauer explain again the difference between the calcification of the larynx alleged to be characteristic of syphilis, and that which is alleged to be characteristic of carcinoma? Also does he think that calcification or ossification in the larynx is essentially different from the same process in other cartilages, such as the costal cartilages? Has he observed that the degree of calcification of the larynx bears any relation to the amount of calcification of other cartilages in the same individual?

Dr. Mark D. Stevenson, Akron, Ohio: I recently had a case of marked stenosis of the larynx which necessitated immediate tracheotomy. The roentgenograms showed conclusively that it was a case of acromegaly. The pictures demonstrated ossification of the larynx and the condition of the pituitary body.

Dr. G. C. Johnston, Pittsburgh: I had the pleasure of examining the patient just referred to by Dr. Stevenson, a case of acromegaly, and the examination of the larynx was interesting. I had not previously associated these cases of acromegaly with involvement of the larynx at all. The patient had the typical gingerbread-man hands and characteristic features. Not long ago in investigating some pituitaries, we found one that was ideal for the Cushing operation, having all the indications. The surgeon went in to perform submucous resection and just when he was completing that and was about to enter the sphenoid there was a gush of pus which was a contra-indication for going further. The lesson is not to look too much in one place. We failed to see the evidence of necrosis in the hard palate. We must be looking for trouble all the time or we will find it without looking for it.

Dr. A. I. Weil, New Orleans: I have had little experience with roentgenograms of the larynx except one case in which its use was shown, that of a man who had had ossification of the arytenoids which had sloughed out, so that he coughed up one complete arytenoid, and later the other. He brought the specimens to me and when we looked into the larynx there was sinking of the arytenoid region, but we could not have told to what it was owing if we had not seen these specimens. With the roentgenogram, although the picture was hazy, it was easy to see the absence of the arytenoids. Without that it would have been impossible to state the condition that had preceded his presenting himself for treatment. I have used the Roentgen ray in bone lesions in retropharyngeal abscess on several occasions, and find it a very valuable aid to examination witn the probe. It outlines very clearly the cavity and aids in the treatment.

Dr. Harris P. Mosher, Boston: This paper teaches that we should take more radiograms of the larynx and endeavor to learn to interpret them properly. I had a rather embarrassing and somewhat humorous case of a retired manufacturer who had taken up farming. He was building a chicken coop and had a lot of staples in his mouth, and thought that he had swallowed one. Sometime later he had some disturbance and went to a general physician who took a roentgenogram and told him the staple was there, and brought the patient down for me to see. On looking at the roentgenogram I was a bit suspicious; I examined the man by the direct method, and was still more suspicious. I sent him for another picture and found that what had shown in the first picture was nothing more nor less than the hyoid bone.

Dr. George F. Cott, Buffalo: All laryngologists acknowledge the value of roentgenograms but the average cases that the practitioner sees are not the ones shown. When there is considerable thickening in the larynx it shows, but when there is a rarefying condition the Roentgen ray shows nothing, and they are the cases that the average practitioner sees.

Dr. L. E. LeWald, New York: I had two cases of retropharyngeal abscess that we were able to differentiate successfully in children. A physician who saw one of the cases was of the opinion that it was tuberculosis of the cervical vertebrae, with probably abscess of that origin, which would preclude opening the abscess in the pharynx. Roentgenoscopy disclosed not only absence of any bone lesion in the vertebrae but also, very distinctly, the outlines of an abscess in the pharynx, and it was opened successfully. Another patient in whom there was swelling in the pharynx, associated with tuberculosis of the cervical lymph-nodes, showed an outline in the pharynx sufficiently well to warrant incision. One other case of interest was that of a supposed tumor, as carcinoma of the upper end of the esophagus, in which the Roentgen ray enabled us to exclude a tumor and make a diagnosis, when taken together with other symptoms, of glossolabiolaryngeal paralysis.

Dr. Samuel Iglauer, Cincinnati: Dr. Hickey referred to pictures of the trachea. I did not go into that subject much because it has been worked out pretty well by the roentgenologist. I have a picture, however, which shows a kink in the trachea due to pleuritic adhesions pulling it out of line. In compression of the trachea by a thyroid tumor, it is, of course, necessary to have anteroposterior pictures. Dr. Caldwell asks about calcification and ossification in the larynx. It is difficult to reduce the matter to rules, but I think according to the work of Fraenkel and Scheier, that it begins at about the age of 19. Sometimes you find it at 14 or 15 years, but you may find a woman as old as 100 without any distinct ossification in the anterior portions of the thyroid cartilage. Calcification usually precedes ossification. I mentioned the relation of the vertebrae to laryngeal conditions. With an abscess in the retropharynx, it is very important to study the condition of the vertebrae. I have had no experience with acromegaly and am interested in the report made by Dr. Stevenson and Dr. Johnston. With regard to Dr. Weil's case, some studies have been made on the question of dislocation of the arytenoid cartilages, and it has been possible to diagnose the condition by the Roentgen ray. As to Dr. Mosher's case, it is easy to understand how that mistake could be made, as the hyoid bone would have the appearance and shape of a staple. Just the reverse of his experience occurred to me. A patient was brought to me with the statement that roentgenogram had shown no foreign body, but I had another taken which revealed a safety pin which had been in the larynx for six months.

THE FEEDING VALUE OF SANATOGEN COMPARED WITH COMMERCIAL CASEIN WITH RESPECT TO MAINTENANCE AND GROWTH

JOHN PHILLIPS STREET, M.S.
Chemist Connecticut Agricultural Experiment Station
NEW HAVEN, CONN.

The proprietary preparation "Sanatogen" is claimed to consist of about 95 per cent. casein and 5 per cent. sodium glycerophosphate. The analysis of C. B. Morison[1] is as follows:

Water	9.97
Total nitrogen	12.81
Nitrogen, ppt. by acetic acid	12.54
Casein	80.01
Ether extract	0.11
Ash	5.59
Sulphur, total	0.73
Sulphur in casein	0.64
Phosphorus, total	1.49
Phosphorus in casein	0.69
Phosphorus in inorganic form	0.11

In connection with the above analysis it was demonstrated that sodium glycerophosphate was present. Sanatogen, therefore, consists essentially, on the water-free basis, of about 90 per cent. casein and 5 per cent. sodium glycerophosphate, with a small amount of an unidentified nitrogenous compound containing both sulphur and phosphorus, and a small amount of phosphorus in inorganic combination. The manufacturers claim that the two essential ingredients exist in Sanatogen as a definite chemical compound. Certain authorities, on the other hand, have insisted that the casein and glycerophosphate have not been chemically combined and that Sanatogen is simply a mechanical mixture of the two. Which claim is correct we will not consider here, for indeed it is of little importance, for whether or not chemically combined the action of the digestive fluids of the body would speedily break down the alleged compound into its constituents, and the body would have casein and the glycerophosphate offered for its use, just the same as though they had been offered as a mere mechanical mixture.

---

[1] Morison, C. B.: Rept. Conn. Agric. Exper. Station, 1912, p. 197.

It being apparent that Sanatogen consists almost entirely of casein and sodium glycerophosphate, the former well-known ingredient making up nine-tenths of its weight, the question naturally arises how a mixture of these two common substances can acquire, simply by that admixture, unusually valuable properties not possessed by the two components. Leading physiologists quite generally agree that phosphorus in the form of glycerophosphates influences metabolism very little. Furthermore, it is obvious that the food value of the small amount of glycerin present must be slight. It is apparent, therefore, that whatever nutriment or energy Sanatogen supplies must be dependent on its main constituent, casein.

Sanatogen is commonly sold at retail in 100 gm. or 200 gm. packages for $1 and $1.90, respectively. It is possible that in larger quantities these prices might be shaded somewhat, but the fact remains that the ordinary retail purchaser of Sanatogen pays for it about 1 cent per gram, or about $4.50 per pound. If the value of Sanatogen depends on its casein, one might ask, in all fairness, why should the patient pay $4.50 per pound for Sanatogen when he can secure ordinary commercial casein for 8.5 to 10 cents per pound? (The Casein Mfg. Co. of New York quoted to me their No. 60 casein at 10 cents per pound in 5-pound lots, 8.5 cents per pound f. o. b. Bainbridge, N. Y., in 100-pound lots, and 8.5 cents per pound, freight paid, in 500-pound lots.) I have purchased Sanatogen from a wholesale druggist at the rate of $2.75 for 400 gm., or $3.12 per pound, so that under the most favorable conditions the cost of Sanatogen is more than thirty times as great as the commercial casein in question.

Is the consumer justified in paying this exceedingly high price for purified casein? The following feeding experiments were carried out to answer this query.

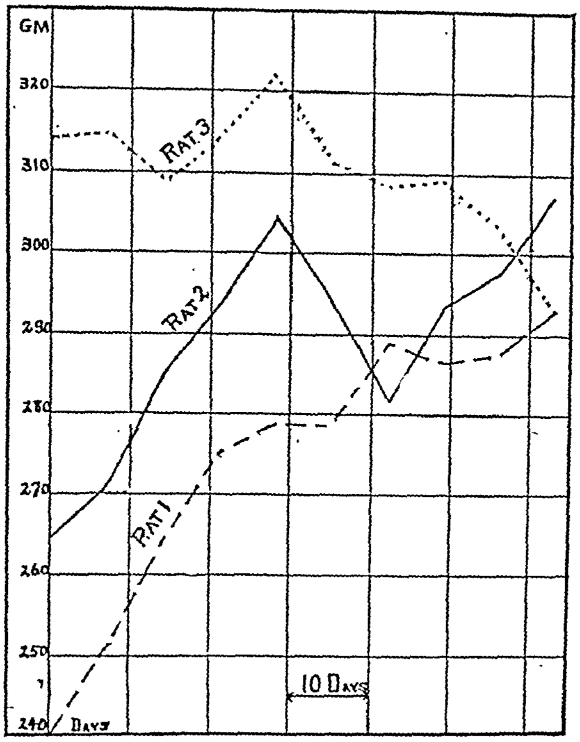


Chart 1.—Growth curves of Rats 1, 2 and 3, on Ration 1: Casein.

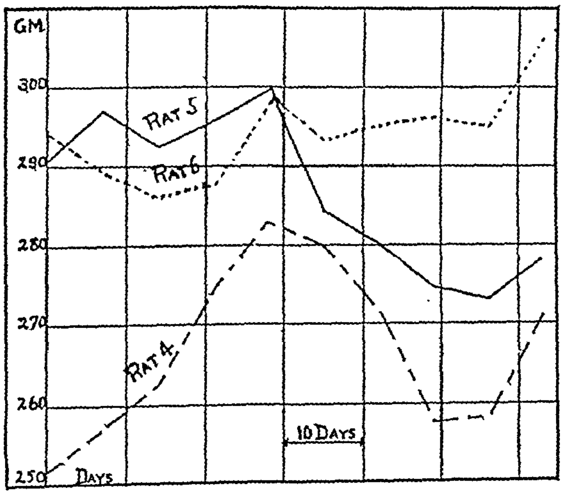


Chart 2.—Growth curves of Rats 4, 5 and 6, on Ration 2: Sanatogen.

FEEDING EXPERIMENTS

White rats were chosen for the experimental animals because of their adaptability for tests of this kind, as shown by the extended successful experience of Osborne and Mendel, and also because, by using white rats, I could take advantage of the equipment and the experience of my colleagues, Dr. T. B. Osborne, Prof. L. B. Mendel and Miss Edna L. Ferry.

The value of Sanatogen as compared with commercial casein was studied from two points of view:

1. Its value in maintaining the weight of mature rats.
2. Its value in promoting the growth of young rats.

I. THE MAINTENANCE OF WEIGHT OF MATURE RATS

The Sanatogen used contained 12.88 per cent. of nitrogen, and the casein, 12.82 per cent., so that from the point of view of nitrogen content they were practically equivalent, gram for gram.

Six healthy male animals were

TABLE 1.—WEIGHTS OF CASEIN RATS, ON RATION NO. 1, OVER A PERIOD OF NINE WEEKS*

Date	Rat 1			Rat 2			Rat 3		
	Weight, gm.	Gain or Loss, gm.	Food Eaten, gm.	Weight, gm.	Gain or Loss, gm.	Food Eaten, gm.	Weight, gm.	Gain or Loss, gm.	Food Eaten, gm.
1/2	240.0	.....	.....	264.6	.....	.....	314.1	.....	.....
1/9	250.8	+10.8	73.7	270.9	+ 6.3	85.2	314.6	+ 0.5	95.7
1/16	264.3	+13.5	89.3	284.9	+14.0	99.2	308.7	— 5.9	117.9
1/23	274.9	+10.6	90.7	293.5	+ 8.6	107.7	313.8	+ 5.1	116.5
1/30	278.6	+ 3.7	80.2	304.5	+11.0	100.5	322.2	+ 8.4	116.7
2/6	278.3	— 0.3	82.4	294.2	—10.3	97.0	311.2	—11.0	119.9
2/13	288.7	+10.4	85.5	281.5	—12.7	94.2	308.2	— 3.0	125.6
2/20	286.4	— 2.3	86.1	293.3	+11.8	86.8	309.0	+ 0.8	126.8
2/27	287.6	+ 1.2	81.1	297.6	+ 4.3	100.7	303.4	— 5.6	129.3
3/6	292.6	+ 5.0	80.1	307.4	+ 9.8	103.1	292.4	—11.0	101.0
Total	.....	+52.6	759.1	.....	+42.8	874.4	.....	—21.7	1,049.4
Average per week	.....	+ 5.8	84.3	.....	+ 4.8	97.2	.....	— 2.4	116.6

* The growth curves of Rats 1, 2 and 3 are given in Chart 1.

selected, Rats 1, 2 and 3 being fed the casein ration and Rats 4, 5 and 6 the Sanatogen ration. At the beginning of the experiment the casein rats were 257, 360 and 376 days old; the Sanatogen rats, 249, 321 and 275 days old, respectively. These weight conditions, if anything, slightly favored the Sanatogen rats, as they were slightly less mature, and a greater growth might naturally be expected.

The rations fed had the following percentage composition:

Ration 1		Ration 2	
Casein	20	Sanatogen	20
Protein-free milk*	28	Protein-free milk*	28
Lard	8	Lard	14
Unsalted butter	18	Unsalted butter	18
Corn starch	26	Corn starch	20

* Osborne and Mendel: Feeding Experiments with Isolated Food Substances, Carnegie Inst. of Washington, Publ. 156, 1911, Part 2, p. 80.

The rats were weighed twice a week for nine weeks, a record of the food consumed also being kept. Table 1 shows the weekly weights of the casein rats, the weekly gain or loss, and the weekly consumption of food. Table 2 gives similar data for the Sanatogen rats.

TABLE 2.—WEIGHTS OF SANATOGEN RATS, RATION NO. 2, OVER A PERIOD OF NINE WEEKS*

Date	Rat 4			Rat 5			Rat 6		
	Weight, gm.	Gain or Loss, gm.	Food Eaten, gm.	Weight, gm.	Gain or Loss, gm.	Food Eaten,	Weight, gm.	Gain or Loss, gm.	Food Eaten, gm.
1/2	251.8	.....	.....	290.6	......	....	294.0	......	.....
1/9	257.1	+ 5.3	73.4	297.2	+ 6.6	86.3	289.1	— 4.9	58.4
1/16	262.4	+ 5.3	89.8	292.4	— 4.8	88.9	286.1	— 3.0	76.8
1/23	274.4	+12.0	97.3	295.7	+ 3.3	92.8	287.6	+ 1.5	85.8
1/30	282.7	+ 8.3	95.5	299.5	+ 3 8	92.3	298.6	+11.0	90.9
2/6	279.8	— 2.9	97.7	284.2	—15.3	87.7	292.9	— 5.7	89.8
2/13	271.2	— 8.6	96.1	280.0	— 4.2	94.9	295.1	+ 2.2	99.7
2/20	257.5	—13.7	91.6	274.9	— 5.1	96.4	296.0	+ 0.9	93.9
2/27	258.0	+ 0.5	93.5	273.0	— 1.9	103.3	295.0	— 1.0	95.1
3/6	270.9	+12.9	94.8	278.1	+ 5.1	94.9	306.3	+11.3	89.4
Total	.....	+19.1	829.7	.....	—12.5	837.5	.....	+12.3	779.8
Average per week	.....	+2.7	92.2	.....	— 1.4	93.1	.....	+ 1.4	86.6

* The growth curves of Rats 4, 5 and 6 are given in Chart 2.

Certainly the above data show no superiority of Sanatogen over commercial casein. In fact the results might be taken to suggest a slight advantage for the cheaper article, if one were warranted in drawing fine distinctions from a limited number of animals.

To conclude, *a comparative feeding of six male white rats during nine weeks showed no nutritive superiority of Sanatogen, costing $3.12 per pound, over commercial casein costing 10 cents per pound.*

II. THE PROMOTION OF GROWTH IN YOUNG RATS

In the second series of experiments ten male rats were used with four different rations. In these, casein and Sanatogen were compared, using both Osborne and Mendel's "protein-free milk" and their "artificial protein-free milk IV."[2] Butter fat was also substituted for the unsalted butter used in Rations 1 and 2.

The percentage composition of the rations fed was as follows:

Ration 3		Ration 5	
Casein	20	Casein	20
Protein-free milk	28	Artificial p.-f. milk IV	29
Lard	8	Lard	8
Butter-fat	18	Butter-fat	18
Corn starch	26	Corn starch	25
Ration 4		**Ration 6**	
Sanatogen	20	Sanatogen	20
Protein-free milk	28	Artificial p.-f. milk IV	29
Lard	14	Lard	14
Butter-fat	18	Butter-fat	18
Corn starch	20	Corn starch	19

Two male rats were used with each of Rations 3 and 4, and three with each of Rations 5 and 6. They were all healthy young rats ranging from 57 to 71 days old. As in the first series of experiments the rats were weighed twice a week and a record kept of the food consumed. Rations 3 and 4 were fed for 77 days, Rations 5 and 6 for 35 days.

Table 3 shows the weekly weights and gains or losses of the rats fed Rations 3 and 4.

Rat 8 suffered more or less from diarrhea during a considerable part of the experiment, covering a period from March 16 to April 9, and from April 13 to May 11. The food intake correspondingly decreased during those periods.

The difference in the gains in weight shown by the four rats are not great and certainly do not warrant the conclusion that Sanatogen possesses any marked superiority over the commercial casein in promoting growth. The slightly increased gains shown by Rats

---

2. Osborne and Mendel: Jour. Biol. Chem., 1913, xv, 317.

TABLE 3.—COMPARATIVE WEIGHTS OF RATS FED RATIONS 3 AND 4

Date	Weights of Rats, Ration 3, Casein, Protein-Free Milk				Weights of Rats, Ration 4, Sanatogen, Protein-Free Milk			
	Rat 7		Rat 8		Rat 9		Rat 10	
	Weight, gm.	Gain or Loss, gm.	Weight, gm.	Gain or Loss, gm.	Weight, gm.	Gain or Loss, gm.	Weight, gm.	Gain or Loss, gm.
3/9	142.2	......	108.0	......	127.8	......	107.0	......
3/16	152.8	+10.6	120.3	+12.3	129.1	+ 1.3	116.0	+ 9.0
3/23	165.7	+12.9	135.1	+14.8	144.6	+ 15.5	134.5	+ 18.5
3/30	178.6	+12.9	140.4	+ 5.3	160.0	+ 15.4	149.8	+ 15.3
4/6	187.8	+ 9.2	148.8	+ 8.4	173.1	+ 13.1	143.8	— 6.0
4/13	198.5	+10.7	157.6	+ 8.8	185.6	+ 12.5	166.1	+ 22.3
4/20	204.6	+ 6.1	164.6	+ 7.0	194.8	+ 9.2	179.4	+ 13.3
4/27	210.3	+ 5.7	167.2	+ 2.6	204.6	+ 9.8	191.0	+ 11.6
5/4	223.0	+12.7	179.6	+12.4	222.9	+ 18.3	204.7	+ 13.7
5/11	223.6	+ 0.6	191.6	+12.0	236.4	+ 13.5	210.8	+ 6.1
5/18	231.5	+ 7.9	203.6	+12.0	240.0	+ 3.6	218.6	+ 7.8
5/25	237.4	+ 5.9	213.9	+10.3	247.3	+ 7.3	226.7	+ 8.1
Total	.....	+95.2	.....	+105.9	.....	+119.5	.....	+119.7

9 and 10 are entirely incommensurate with the cost of the Sanatogen. All of the rats showed a vigorous growth and exceeded the average weight expected for rats of their respective ages, based on the long series of observations of Osborne and Mendel, as shown in Table 4.

TABLE 4.—WEIGHT OF RATS 7 TO 10 COMPARED WITH AVERAGE WEIGHT OF RAT OF SAME AGE

Rat	Age in Days	Final Weight, gm.	Average Weight for Rat of Same Age, gm.
7	148	237	204
8	138	214	201
9	145	247	204
10	134	227	197

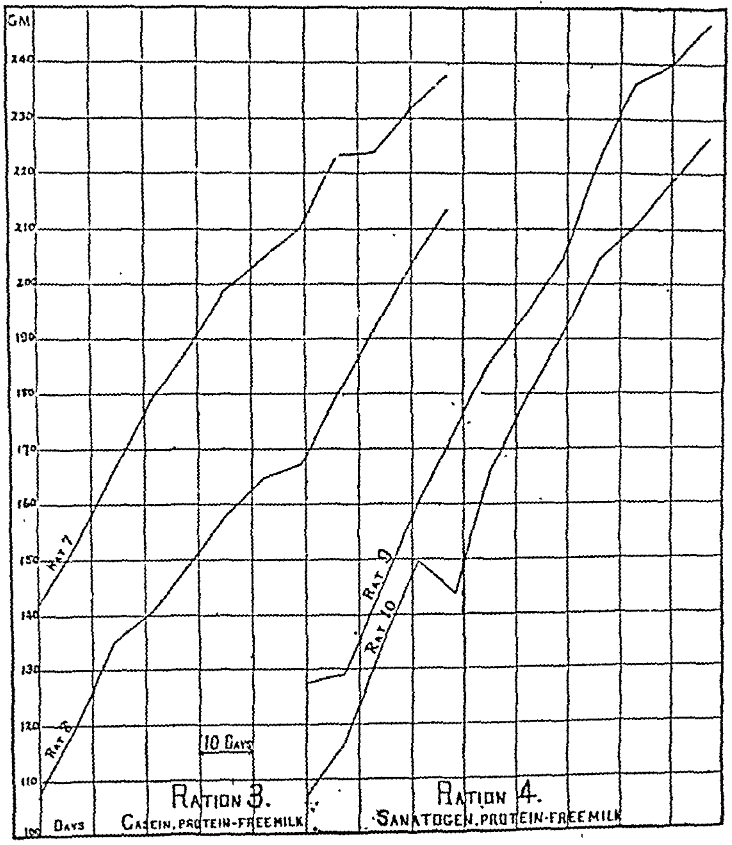


Chart 3.—Growth curves of Rats 7, 8, 9 and 10 on Rations 3, Casein, protein-free milk, and 4, Sanatogen, protein-free milk.

Rat 13 suffered more or less from diarrhea throughout the whole experiment, and Rat 16 suffered similarly during the first two weeks.

The results secured by Rations 5 and 6 compared with Rations 3 and 4, the only difference being that natural protein-free milk was used in the latter and artificial protein-free milk in the former, are most striking. Such results were anticipated from the experience of Osborne and Mendel in feeding similar materials. All of my rats, except Rat 13, a casein rat, showed a decided loss in weight after five weeks' feeding on rations containing artificial protein-free milk. These losses amounted to 19.7, 9.0, 23.1, 6.7 and 27.6 gm., whereas rats fed on the same rations, except for the form of protein-free milk, gained, during the same period of five weeks, 56.3, 49.6, 57.8 and 59.1 gm. The fact that one casein rat fed on the artificial protein-free milk showed a substantial gain is without significance, as such exceptions to the general rule occur occasionally, and, furthermore, this rat also during the last week of the experiment likewise lost weight. The extent of these losses compared with what the average normal male rat weighs at a corresponding age is shown in Table 7.

TABLE 5.—WEIGHTS OF RATS FED RATION 5, CASEIN, ARTIFICIAL PROTEIN-FREE MILK*

Date	Rat 11		Rat 12		Rat 13	
	Weight, gm.	Gain or Loss, gm.	Weight, gm.	Gain or Loss, gm.	Weight, gm.	Gain or Loss, gm.
3/9	132.1	......	110.0	......	99.0	......
3/16	130.4	— 1.7	116.8	+ 6.8	110.3	+11.3
3/23	136.8	+ 6.4	130.8	+14.0	108.6	— 1.7
3/30	137.1	+ 0.3	138.0	+ 7.2	100.2	— 8.4
4/6	127.1	—10.0	143.9	+ 5.9	95.5	— 4.7
4/13	112.4	—14.7	143.6	— 0.3	90.0	— 5.5
Total	.....	—19.7	.....	+33.6	.....	— 9.0
4/20	146.7	+33.7	170.7	+27.1	104.0	+14.0

* Date 4/20 covers use of mixed food.

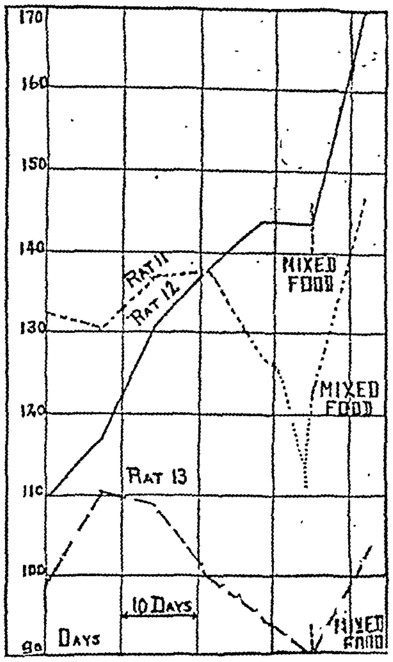


Chart 4.—Growth curves of Rats 11, 12 and 13, on Ration 5: Casein, artificial protein-free milk.

TABLE 6.—WEIGHTS OF RATS FED RATION 6.—SANATOGEN, ARTIFICIAL PROTEIN-FREE MILK*

Date	Rat 14		Rat 15		Rat 16	
	Weight, gm.	Gain or Loss, gm.	Weight, gm.	Gain or Loss, gm.	Weight, gm.	Gain or Loss, gm.
3/9	118.4	......	111.3	......	101.3	......
3/16	126.2	+ 7.8	116.2	+ 4.9	100.0	— 1.3
3/23	126.6	+ 0.4	123.4	+ 7.2	98.0	— 2.0
3/30	124.7	— 1.9	123.3	— 0.1	98.7	+ 0.7
4/6	110.2	—14.5	112.3	—11.0	88.7	—10.0
4/13	95.3	—14.9	104.6	— 7.7	73.7	—15.0
Total	.....	—23.1	.....	— 6.7	.....	—27.6
4/20	130.3	+35.0	135.3	+30.7	106.4	+32.7

* Date 4/20 covers use of mixed food.

That these losses in weight were not due to any inherent weakness in the rats is shown by the fact that by feeding Rats 11 to 16 for one week after the termination of the experiment with Osborne and Mendel's

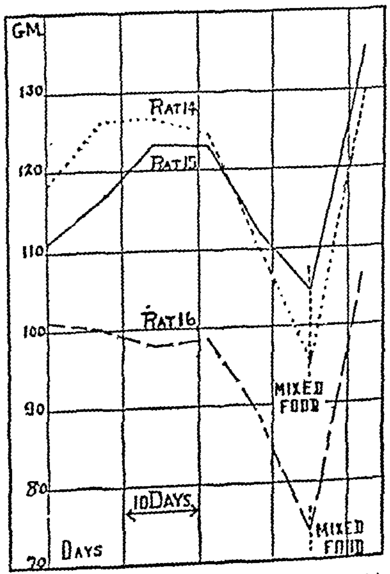


Chart 5.—Growth curves of Rats 14, 15 and 16, on Ration 6: Sanatogen, artificial protein-free milk.

"mixed food" (a mixture of dog bread, sunflower seeds, vegetables and meat) very large gains were secured in every instance, ranging from 14 to 35 gm.

The growth curves for Rats 7 to 16 are shown in Charts 3, 4 and 5.

TABLE 7.—WEIGHT OF RATS 11 TO 16 COMPARED WITH AVERAGE WEIGHT OF RAT OF SAME AGE

Rat	Age, Days	Final Weight, gm.	Average Weight of Rat of Same Age, gm.
11	106	112	167
12	106	144	167
13	99	90	162
14	106	95	167
15	92	105	153
16	96	74	158

To conclude, *a comparative feeding of four male white rats during eleven weeks, showed, if anything, a slightly greater, but insignificant, increase in weight for Sanatogen over commercial casein. In a ration in which artificial had been substituted for natural protein-free milk, Sanatogen showed no advantage over commercial casein in checking the failure in weight of the rats.*

BACTERIOLOGY OF CHOLECYSTITIS AND ITS PRODUCTION BY INJECTION OF STREPTOCOCCI *

E. C. ROSENOW, M.D.
CHICAGO

The bacteriology of cholecystitis, as worked out heretofore, is largely the bacteriology of the contents and not the tissue of the gall-bladder wall. (The mechanism of infection of the gall-bladder and the production of gall-stones have not been fully worked out experimentally.) In a previous paper I pointed out that when streptococci, from various sources, attain a certain grade of virulence, they are prone to produce on intravenous injection cholecystitis and gall-stones, with large numbers of streptococci as the nuclei. In this connection the observations in the following case are of interest:

A woman, aged 62, with infected tonsils, high blood-pressure, and a chronic arthritis, involving chiefly the small joints of the hands, contracted a "cold" and acute tonsillitis. Ten days later she developed a typical acute attack of cholecystitis. The symptoms continued for three weeks without jaundice. Then the pain shifted and the next day jaundice appeared, which deepened for a week and then gradually subsided. Jan. 19, 1914, five weeks after the beginning of the attack, an operation was made by Dr. Bevan. There was found a healing area, 1 by 1.5 cm., of necrosis at the fundus; but otherwise the gall-bladder was nearly normal.

The bladder was moderately distended with bile containing mucus and three soft "mulberry" cholesterin stones. Cultures from the bile were sterile; streptococci, colon bacilli and gas bacilli developed from the center of two of the stones, while from the emulsion of the excised piece of tissue only streptococci developed. The streptococci from both of these sources produced grayish-green, moist, non-hemolyzing colonies on blood-agar and marked precipitation and acidity on dextrose-agar. They formed chains of diplococci and a large number of round cocci, which were often in masses, like some of the strains obtained from gastric ulcer. Sections from the wall of the gall-bladder, stained by Gram's method, showed a moderate number of streptococci.

Dog 57, of medium size, was injected intravenously, January 22, with the growth of the streptococcus from the wall of the gall-bladder in 90 c.c. of ascites-dextrose broth, suspended in 7 c.c. of sodium chlorid solution.

January 24: Lame in the left hind leg. Fluid from knee-joint turbid. Cultures were made.

January 26: Cultures from knee-joints showed four, green-producing, non-hemolyzing streptococci.

January 30: Found dead. Acute cholecystitis, enteritis, localized pancreatitis and nephritis. The wall of the gall-bladder was edematous, from 3 to 6 mm. thick; the mucous membrane was velvety, and covered in areas with a loosely adherent exudate; the cavity was distended with brownish fluid, containing masses of pus and mucus; pressure on the gall-bladder failed to discharge bile until the plug of the mucopus in the diverticulum was removed by passing a probe and by making firm pressure; a moderate number of dark concretions, of the consistency of putty, were found in the masses of mucopus in the gall-bladder and in the plug in the diverticulum. Smears from the crushed concretions, washed repeatedly in sodium chlorid solution, showed many streptococci. The liver was normal; there were whitish streaks in the medullary portion of the kidney, most numerous and largest near the pelvis, where a number of small ulcers were found; the cortex appeared normal; the urine contained leukocytes, some albumin and bile, and was highly acid; the mucous membrane of the lower end of the small intestine was hyperemic and covered with exudate in which were many streptococci; the fluid in the knee-joints was slightly turbid; the stomach, large intestine, adrenals, thyroid, lungs and heart were normal.

The bile, the plug of mucus and the wall of the gall-bladder yielded large numbers of streptococci. The joint fluids and the pelvis of the kidney gave a few colonies of non-hemolyzing streptococci. The blood remained sterile. Sections of the wall of the gall-bladder showed marked thickening and degeneration of the mucous membrane. Gram-Weigert stains show a large number of streptococci, especially in the submucosa.

The fluid contents of the gall-bladder, the center of stones, and particularly parts of the wall of the gall-bladder of twenty-nine cases of cholecystitis have now been studied according to my new method.[1]

I wish here to express my very great appreciation for the opportunity afforded me recently at the Mayo Clinic where most of the cases occurred.

In five cases, the cultures from the wall were negative and in these the microscopic evidence of any changes was slight. In the remaining twenty-four cases, in all of which increase in thickness and other changes were more marked, streptococci were isolated in all but three and in pure culture in ten. In sixteen cases streptococci were found in the wall when the contents were sterile or contained only the colon bacillus. The colon bacillus was found with the streptococcus in only ten cases, once in pure form, once in association with the *Bacillus welchii,* and once with the staphylococcus. *Bacillus mucosus* was found in two cases of very acute cholecystitis. In two, diphtheroid bacilli were found and in one the fusiform bacillus was found. The fluid contents, usually bile, were examined in twenty-six cases: In twelve it was sterile; streptococci were found six times, colon bacilli nine times; staphylococcus three times; the *Bacillus mucosus* twice, and the fusiform bacillus once. The center of gall-stones have been examined in thirty cases. Only two proved sterile; from the rest, streptococci were isolated in all but three, fourteen times in pure form and five times in association with the colon bacillus; the center of the stone, in one case, showed the typhoid bacillus in pure form while the center of two stones and the wall of the gall-bladder in a case with a clinical diagnosis of typhoid cholecystitis showed streptococcus in pure culture; in two cases the center of stones contained colon bacillus and the *Bacillus welchii*, and one the latter organism only; in some instances, streptococci were demonstrable in smear preparations from the center. Cultures from other portions of stones were usually sterile. The adjacent lymph-glands were examined in five cases. Streptococci were found in four, pure in three cases and in association with the *Bacillus welchii* in one case. In the cases in which a pure culture of the streptococcus was obtained from the tissue of the gall-bladder there seemed to be a definite relation between the number of colonies which developed and the degree of change, especially if relatively recent inflammation was present.

---

[1] Rosenow, E. C.: The Newer Bacteriology of Various Infections as Determined by Special Methods, The Journal A. M. A., Sept. 12, 1914, p. 903.

A comparison of the results obtained from the bile, the stones and the wall of the bladder, in the individual cases, shows that a bacteriologic examination of the fluid contents gives trustworthy results only in the acute stage of the disease; during convalescence and in chronic cholecystitis the results are of little value and may be misleading. In chronic cholecystitis the bacteriology of the center of the stones is similar to that of the wall of the bladder.

The effect of the various organisms on intravenous injection has been tested in dogs and rabbits. All of the five strains of streptococci isolated from the wall of the bladder, one strain from an adjacent lymph-gland, and two out of five strains from the center of stones showed a marked affinity for the gall-bladder soon after isolation, and frequently produced no lesion elsewhere. Varying doses produced cholecystitis in nearly every animal injected. The severity of the lesions in the animals often corresponds to that found in the cases from which the strains are isolated. This affinity is soon lost, however, on cultivation as well as on animal passage. Five strains of colon bacilli, the one strain of typhoid bacillus, and one strain of the *Bacillus mucosus* in no instance showed any tendency to localize in the gall-bladder. It was not possible to produce cholecystitis with the streptococci by injecting them into the portal system, even with strains which produced cholecystitis practically every time when injected into the vein of the leg, and only localized cholecystitis developed at the point of puncture when the injection was made directly into the gall-bladder. In the animals which lived for a time, there was not infrequently observed the beginning formation of gall-stones containing numerous streptococci similar to the conditions found in several of the patients.

The strains of streptococci from the different cases show a striking similarity and resemble closely those from ulcers of the stomach. They produce either small, moist, grayish-brown or grayish-green, non-adherent, non-hemolyzing colonies on blood-agar; they ferment mannite, lactose and salicin; they produce short chains in liquid mediums with clumps of cocci somewhat resembling staphylococci; they are of a rather low virulence, yet somewhat more virulent than strains from gastric ulcers, as manifested by their resistance to phagocytosis, by the smaller dose necessary to kill, and by the fact that, when cultivated for a time, they acquire affinity for the stomach and duodenum while the strains from ulcers, when passed through one or two animals, acquire affinity for the gall-bladder at the same time as they lose affinity for the stomach.

On animal passage, two of the strains produced both cholecystitis and pancreatitis, the lesions in the latter being most marked in the head of the pancreas.

The lesions most commonly observed other than cholecystitis, when these strains are injected especially in rabbits, are: ulcer of the stomach, hepatitis about the gall-bladder, myositis and myocarditis, arthritis, appendicitis and colitis.

The common presence of streptococci in the wall of the infected gall-bladder and in the center of gall-stones, often in pure culture, while absent from the bile and their affinity for the gall-bladder in animals are strong evidence that streptococci are the cause of cholecystitis in man far more frequently than believed and serves to explain the good results reported by some as following cholecystectomy in cases of myocarditis, arthritis and other conditions.

122 South Michigan Avenue.

END-RESULTS IN CASES OF GASTRIC AND DUODENAL ULCER *

ELLIOTT P. JOSLIN, M.D.
BOSTON

In 1899 Dr. Robert B. Greenough and I[1] reported on the condition of 187 patients with gastric ulcer treated at the Massachusetts General Hospital for the preceding ten years. We were able to show that "of 114 patients, 80 per cent. were discharged cured or relieved, but at the end of an average period of five years only 40 per cent. remained well." The mortality at the same time (due to gastric disease) was 20 per cent. Among the men it was 30 per cent., in women 9 per cent. The excessive mortality of ulcer among men, its occurrence in life a decade later than in women, and the absence of fatal cases of hemorrhage in women, point to a difference of the ulcer in the two sexes. . . . The failure of medical treatment to effect a lasting cure in 60 per cent. of the patients indicates the need of surgical intervention in other than emergency cases of this disease." These figures aroused wide-spread comment, because gastric ulcer had previously been considered a disease in which cure was the rule.

Fifteen years have intervened since the preceding compilation. Revolutionary changes have taken place in the knowledge and in the treatment of the disease. Duodenal ulcer is now considered as frequent in occurrence as gastric ulcer. Undoubtedly, in the previous report, a considerable number of duodenal ulcers were classified as gastric. In this series an attempt has been made to distinguish between the gastric and duodenal ulcers. This was difficult even with the knowledge gained in the operating-room. As a matter of fact, my personal division of the cases showed them to be within three of being divided equally. Surgery has wrought the other change in our attitude. Whereas, in the 187 cases occurring at the Massachusetts General Hospital in the ten years ending in 1898, but four patients were operated on, to-day operation is a common event. Justification, therefore, exists for another report on the end-results of treatment of duodenal and gastric ulcer, even apart from the fact that very favorable statistics concerning the present treatment of the disease are again being published.

---

* Read before the Section on Practice of Medicine at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

[1] Greenough and Joslin: Gastric Ulcer at the Massachusetts General Hospital, 1888-1898, Am. Jour. Med. Sc., August, 1899.

The purpose of this paper is to call attention to the outcome, after the lapse of many years, of a group of cases of gastric and duodenal ulcer. It is not the intention to emphasize the medical or surgical treatment, but to show end results. Some of the cases were treated by me, but as a rule they were seen in consultation with physicians. The medical treatment of ulcer is sufficiently well known but not sufficiently well carried out.

It has been possible to ascertain the present condition of 91 per cent. of all the cases seen by me in private practice during the last sixteen years. As the whole value of the paper rests on this fact, we are more than glad to take this opportunity to acknowledge that so large a percentage of cases could never have been traced without the persistence of my secretaries, Miss Helen Leonard and Miss Florence Newnham. I am also greatly indebted to Dr. Hugh P. Greeley, without whom the cases could not have been selected and analyzed and to whose critical judgment I owe much.

METHOD OF SELECTION OF CASES

All cases showing digestive symptoms of any kind from 1898 to date, including even gall-stone cases, were collected from my records and analyzed for this report. This was necessary because to-day duodenal ulcer would be recognized in cases in which it was not recognized ten years ago. A number of cases of duodenal ulcer were thus found which were not originally so diagnosticated. The basis on which the diagnosis of ulcer rested was (1) the history, with especial attention to the symptoms of hyperacidity, pain, hemorrhage, perforation, the duration of the case and the after-history; (2) the knowledge acquired by surgery; (3) necropsy reports.

The total number of cases was 234. Table 1 shows the number of cases seen each year.

TABLE 1.—NUMBER OF CASES SEEN EACH YEAR

Year	No.	Year	No.
1898	3	1908	14
1899	1	1909	8
1900	3	1910	15
1901	4	1911	28
1902	9	1912	30
1903	17	1913	31
1904	12	1914	8
1905	23		
1906	14	Total	234
1907	14		

The present condition of the patient in 213 cases, or 91 per cent., is known.

SEX; AGE; AT ONSET AND DURATION

The number of male patients was 142, and the number of female patients was 92. These figures form an interesting contrast to the Massachusetts General Hospital series before cited, for in that series there were 5 females to 1 male.

The average age of the male patients when first seen was 45 years and 2 months, but this does not represent the age at which the symptoms of ulcer began. The average age of onset of the ulcer in the males was 38 years and 8 months. The average age of the female patients when first seen was 36 years and 4 months, and the onset began at 30 years and 10 months; in other words, symptoms had existed for five years and six months, and at an age eight years earlier than that of the males. The statement is approximately correct that six years intervened between the onset of symptoms of all the cases and the time they first came for treatment. Undoubtedly this interval was greater rather than less. The duration of the disease in patients at present not relieved is eleven years. The duration in many cases was, in the patients' words, "as long as I can remember," but these could not be included in our tabulation because a definite time of onset was not known. The duration between onset and operation in thirty of the eighty-two patients surgically treated was ten years. In other words, the patients came to the surgeon, at an average, four years later than to the physician. The importance of the long duration of this disease cannot be too much emphasized. It lends support to skepticism about the high percentage of cures so frequently reported by physicians and surgeons. Twenty-one of the patients were 60 years old or over when first seen. One patient was successfully operated on at the age of 86, for which the entire credit is due to Dr. E. A. Codman, who, remembering the patient's indigestion, discovered the ulcer during an emergency operation for a twisted ovarian pedicle.

SYMPTOMS

The severity of the disease is readily seen from the frequency of severe symptoms. Vomiting was present in 147 cases, 63 per cent. Pain existed in 184 cases, 74 per cent. Hyperacidity, as shown by the symptoms, or in a large number of cases by gastric analysis, appeared 134 times, or 54 per cent. Hemorrhage was noted in 71 cases, 30 per cent.; but this figure is low because these statistics of hemorrhage were compiled from facts learned at the first examination, whereas, occasionally, hemorrhage occurred later for the first time. Hemorrhage was occasionally observed at a time after operation when the trauma of the operation could be excluded.

Perforation developed 9 times, 4 per cent. Six of these patients were operated on, and two recovered. Of the remaining 3 patients, 2 died and 1 recovered, to die five years later of pulmonary tuberculosis. This patient, following perforation, coughed up pus for a considerable length of time.

Stasis was present in 41 cases, 17 per cent. To me it was a surprising fact that 3 of these patients with marked stasis, after periods of nineteen, fourteen and ten years respectively, must be considered as relieved and yet without surgical treatment.

RESULTS OF TREATMENT

The results of treatment are classified under the headings of "At Present Well," "Relieved," "Unrelieved," and "Dead." The term "At Present" is inserted because in too many cases in which the patients are considered cured, the ulcer recurs. Undoubtedly, a considerable proportion of patients now well will later develop symptoms. The term "Relieved" in this paper is liberally interpreted. Many patients recorded as relieved are merely relieved, and acknowledge that this condition is only attained by rest and a careful diet. In this group are also included many who before reaching this improved stage had a recurrence of symptoms. The term "Unrelieved" is self-explanatory. Under the heading "Dead," care has been taken to avoid the error of crediting deaths to medical or surgical treatment when these were simply intercurrent and had no relation to digestive trouble. There were 11 such instances. Two patients died of pneumonia, two of cancer of the colon and two by accident, while apoplexy, tuberculosis, cirrhosis of the liver, brain-tumor and cancer of the breast each claimed one.

Medical Treatment: The total number of medical cases traced was 131, of which 51 patients are well at present, 55 are relieved, 16 unrelieved, and 9 dead. Three of the 51 patients now well have had a recurrence of symptoms after being first treated, and of the 55 patients relieved, 19 have had such recurrence. In other words, of the 131 medical cases followed to the present time, 39 per cent. of the patients were cured, 42 per cent. relieved, 12 per cent. unrelieved, and 7 per cent. dead.

The causes of death of the 9 medically treated patients were as follows:

Cancer of stomach 2, cancer of duodenum 1, perforation 2, of which one was a typical case of paroxysmal vomiting in a child, hemorrhage 2, and inanition 2.

TABLE 2.—RESULTS OF MEDICAL TREATMENT IN 131 CASES OF GASTRIC AND DUODENAL ULCER

At Present	Number	Per Cent.
Well	51	39
Relieved	55	42
Unrelieved	16	12
Dead	9	7
		100

Surgical Treatment: It would be manifestly unfair to report the results of the surgical treatment without emphasizing that:

1. A surgical case means a medical failure. In all of the 82 surgical cases the patients were operated on because medical treatment had failed.
2. Among the surgical failures are necessarily included two types of cancer cases—those cases of ulcer in which the patients die, after months or years, from cancer, and also cases in which there might be a difference of opinion as to whether these cases should have been excluded from the ulcer series on the ground that they were cancer from the outset or had become cancer at the time of operation.
3. Several of the cases of perforation were transferred to the surgeon at a time when the whole responsibility really rested on the medical attendant.
4. A number of patients were transferred to the surgeon for operation debilitated by inanition or prolonged hemorrhages.

In drawing my own inferences from the surgical treatment of the eighty-two surgical cases, I should deduct from the group of twenty-six surgical deaths nine cases of cancer of stomach or duodenum for example, one of these patients at 75 years of age with a history of ulcer of twenty years' duration, showed cancer when operated on by the surgeon. He was given complete relief by gastro-enterostomy for a year and three-quarters and died painlessly six months later, yet that case although surgically classified should not be considered a surgical failure. I would also deduct two cases of perforation, because they occurred at a time when, even without perforation, the patient was *in extremis*, and also one case because of inanition of the patient. It is true that twenty-six of the eighty-two patients operated on are now dead, but with the deductions which I feel are justified, this is reduced to fourteen, a surgical mortality of 20 per cent. In ten of the surgical cases, 12 per cent., the patients are still unrelieved. Thirteen, or 16 per cent. are relieved, though before reaching this half-happy stage after the surgical intervention, five had recurrence. Thirty-three, or 40 per cent. are now well, and of this number only three have had recurrence since operation. It will thus be seen that despite the handicaps which were heaped on the surgeon, his percentage of cures, 40 per cent., is approximately the same as that of the physician. If we discard the twelve deaths for which the surgeon might well not be held responsible, 47 per cent. of the surgical patients are well.

But I will now ask you to look at the matter from another point of view. If one should add all the surgical cases to the medical cases, for they were medical cases before they were surgical in this particular series, and then classify these surgical cases as medically unrelieved, we should then have 213 medically treated patients, of whom there are but 51, or 24 per cent., who recovered under medical treatment! The remainder, 162 patients, 76 per cent., were only partially relieved, unrelieved, dead, or forced into the surgeon's hands. It is my impression that this is the correct way in which to regard the medical treatment of gastric ulcer. In other words, medicine cures only approximately 24 per cent. of the ulcer patients, and of these there is a considerable chance for later relapse. Surgery helps out medicine and adds another 15 per cent. to those cured. In other words medicine and surgery together have given back complete health to 39 per cent. of 213 ulcer patients seen or treated by me in the last sixteen years.

TABLE 3.—RESULTS OF SURGICAL TREATMENT IN 82 CASES OF GASTRIC OR DUODENAL ULCER

At Present	Number	Per Cent.
Well	33	40
Relieved	13	16
Unrelieved	10	12
Dead	26	32

TABLE 4 (REVISED FROM THE FOREGOING).—RESULTS OF SURGICAL TREATMENT IN 70 CASES OF GASTRIC OR DUODENAL ULCER TREATED SURGICALLY *

At Present	Number	Per Cent.
Well	33	47
Relieved	13	19
Unrelieved	10	14
Dead	14	20

* This table was compiled from the foregoing table after the deduction of 12 deaths for which the surgeon was not responsible.

The causes of death in the surgical cases were as follows:

Cancer of stomach 7, cancer of duodenum 2, soon after operation 7, perforation 3, abscess of lung 2, empyema 2, pneumonia 1, pancreatic fistula 1, embolus 1.

It is noticeable that there is no case of jejunal ulcer; in fact, no patient with jejunal ulcer occurred in the series. In but five of the eighty-two cases was it necessary to operate twice.

The number of surgeons who operated on these 82 patients was 36. Two surgeons operated on 37 patients, and 4 surgeons on 15 others, while 30 patients were operated on by as many different men.

The type of operation was as follows:

Gastro-enterostomy	61
Infolding the ulcer, drainage, adhesions and exploratory laparotomy	15
Resection	3
Unknown	3

It is noticeable in how few instances the ulcer was resected. I must record that one of the severest cases was the one in which fully one-third of the stomach was removed, and this operation was one of the most successful of the group. The case is particularly interesting in that the reason for this extensive resection was due to the report of an eminent pathologist that cancer was present, but on the following day his careful study of the section removed revealed no cancer. It is not appropriate for the physician to comment on the type of operation. The physician has enough responsibility of his own in the treatment of ulcer of the stomach and duodenum.

In Table 5 the combined results of medical and surgical treatment are given.

TABLE 5.—COMBINED RESULTS OF MEDICAL AND SURGICAL TREATMENT IN 213 CASES OF GASTRIC AND DUODENAL ULCER OBSERVED DURING THE LAST SIXTEEN YEARS

Present Condition	Number	Per Cent.
Well	84	39
Relieved	68	32
Unrelieved	26	12
Dead	35	16

CANCER SUBSEQUENT TO ULCER OF THE STOMACH AND DUODENUM

Twelve, or 6 per cent. of the 213 patients have up to the present time died of cancer. The statistics on this point, however, are complete only for the forty-six patients now dead. Of these, 26 per cent. succumbed to cancer. In other words, one out of every four of the patients with ulcer of stomach or duodenum, which have been followed to their death, died of cancer.

CONCLUSIONS

1. In a study made of 234 consecutive cases of gastric and duodenal ulcer seen in private practice during the last 16 years, 213 cases, 91 per cent., were traced to date.
2. Of these cases 142 were in men, 92 in women.
3. The average age in men was 45 years and 2 months when first seen, but the age at onset was 38 years and 8 months. The average age in women was 36 years and 4 months, but at onset 30 years and 10 months. The average duration of the ulcer in the patients still unrelieved is eleven years; the average duration of the ulcer before the cases reached the surgeon, ten years.
4. There were 131 patients who were treated medically throughout, and of these at present 51, or 39 per cent., are well, 55, or 42 per cent., are relieved, 16, or 12 per cent., are unrelieved and 9, or 7 per cent., are dead.
5. Of the patients who were operated on when medical treatment had failed, 82 were traced and of these 33, or 40 per cent. are well; 13, or 16 per cent. are relieved; 10, or 12 per cent. are unrelieved, and 26, or 32 per cent. are dead.
6. Deducting 12 deaths for which the surgeon should not be held responsible there are 70 surgical cases in which 33 patients, or 47 per cent. are well; 13, or 19 per cent. relieved; 10, or 14 per cent. unrelieved, and 14, or 20 per cent. dead.
7. The combined medical and surgical results show at present: well, 84 patients, 39 per cent.; relieved, 68 patients, 32 per cent.; unrelieved, 26 patients, 12 per cent.; dead, 35 patients, 16 per cent.

81 Bay State Road.

GASTRIC CANCER IN THE YOUNG

A STUDY OF SIXTEEN INSTANCES IN PATIENTS UNDER THE AGE OF THIRTY-ONE *

FRANK SMITHIES, M.D.
Gastro-Enterologist to Augustana Hospital
CHICAGO

The sixteen instances of gastric cancer in the young forming the basis of this report were found in my study of the records of 721 pathologically demonstrated cases of cancer of the stomach at the Mayo Clinic and at Augustana Hospital. It is thought that their analysis will demonstrate certain facts of value in anticipating or detecting this grave malady at an age when it is not commonly suspected.

Those who wish to familiarize themselves with the literature on this subject may refer to the excellent monographs of Welch,[1] Osler and McCrea,[2] and Dock.[3]

A summary of previous reports on gastric cancer in the first three decades may be of service. Six instances (often rather dubious as to cancer) have been recorded below the age of 10. In the second decade, thirteen cases are described. In but eight of these were there reliable pathologic reports. In the thirteen instances occurring in the third decade, few descriptions are accompanied by pathologic findings. Many of the patients in this group, however, appeared to have been affected with a gastric malady, seemingly malignant.

INCIDENCE

The relative frequency of gastric cancer in the young varies with the individual series studied. In a small series, as, for example, the beautifully analyzed 150 cases of Osler and McCrea, the proportion was 4 per cent. In a large series, collected for statistical purposes from various non-related sources throughout the world, as in the 2,038 instances tabulated by Welch, the ratio is 2.8 per cent. In my own group of 721 consecutive cases, examined by a uniform method (and a distinctly American experience), the percentage was 2.2 per cent.

Sex: There were nine females and seven males. Age: The youngest patient was aged 18; the oldest just past 30 years. The average age of the series was 27.8 years. Status: Twelve patients were married. In two instances (12 per cent.) there was a family or blood-relationship history of cancer. Only twice were more than ordinary indulgence in tobacco or alcohol noted. Apparently occupation had no eitologic significance.

DURATION OF ALL GASTRIC COMPLAINTS

Most useful facts are brought out by study of this phase. The shortest time was four months, while in one instance the gastric disturbance had persisted for fifteen years. The average length of time of the disability was 4.2 years.

Consideration of the earlier part of those histories in patients exhibiting protracted gastric complaints not infrequently reveals the fact that there is in the early stages a different clinical presentation of the disease than is exhibited towards its end. It would seem that the observation of occasional cases of cancer in which the duration of the gastric history had been long drawn-out, doubtless led such clinicians as Dock[3] and Mathieu[4] to venture the opinion that cancer of the stomach in early life runs a somewhat slow course. This opinion appears well-founded if one considers both the "pre-cancerous" and the evidently cancerous portions of the history.

---

* Read before the Section on Practice of Medicine at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

* Because of lack of space this article is abbreviated in THE JOURNAL by the omission of a table. The complete article appears in the Transactions of the section and in the author's *reprints*. A copy of the latter will be sent by the author on receipt of a *stamped*, addressed envelope.

[1] Welch: Proceedings Boston Society for Medical Improvement, v, Appendix, p. 109.

[2] Osler and McCrea: Cancer of the Stomach, Philadelphia, 1900, p. 16.

[3] Dock: Am. Jour. Med. Sc., June, 1897, p. 665.

TYPES OF GASTRIC HISTORIES

In respect to types the histories divide themselves quite sharply into two groups: Group 1 includes cases in which there appeared a gastric affection, pernicious in nature and progressively downward in course, in patients in whom there had been no previous gastric ailment. Group 2 comprises a number of cases in which, previous to the time at which they came under observation for a gastric disease of a malignant kind, there had been gastric complaints which frequently conformed to the type which we call clinically "peptic ulcer."

Group 1.—Two of the sixteen cases studied fall into this class. The average duration of all symptoms was 4.5 months. In these two cases the disease was from its inception progressively and perniciously downward in course and type, and there was no alteration in the character of the affection. There were, clinically, rapid emaciation, continuous abdominal discomfort, early onset of vomiting, development of epigastric tumor and departures from the normal in the test-meal analysis. Laparotomy revealed large, inoperable growths, with extensive involvement of the lymph-nodes and pancreas. One patient died within twelve days following operation; the other lived a year.

Group 2.—This includes fourteen cases. These patients had been affected for an average time of 4.8 years with some gastric malfunction. In type the early part of their affection had been roughly classed among the "dyspepsias." A careful analysis of the character of these dyspepsias reveals useful facts. In five instances (36 per cent.) the gastric complaint and course had fully satisfied the symptom-complex which we ascribe clinically to peptic ulcer. In four cases (25 per cent.) so-called ulcer features were definite at some stage in the early period (in one instance in this group there was frank gastric hemorrhage). In four other cases (25 per cent.) the long-term history previous to onset of evident malignancy was that of peptic ulcer of irregular type. In the remaining case gall-stone attacks were typical through four years, and the stones were later found at laparotomy.

The second part of the histories of cases making up Group 2 was typical of gastric malignancy. While this phase differed widely in character from the early manifestations, yet it could in nowise be distinguished clinically from the whole course of the ailment in the two cases making up Group 1. If one had not carefully analyzed the early histories of these fourteen cases in Group 2 he could have in no way showed their clinical variation from cases in Group 1. The period of evident malignancy in Group 2 averaged 7.8 months in duration. The most rapid progress was three weeks; that most extended nearly three years.

It might be useful to emphasize the fact here that of this group of gastric cancer cases in the young with long-time histories, 86 per cent. satisfied or approximated our present-day clinical complex of peptic ulcer at some time during a period averaging 4.8 years, previous to the time when the course became malignant; that during this time medical treatment availed nothing and the surgical opportunity for cure was usually neglected; that the cases in this group, due to some unknown cause, did not pursue a course of chronicity of benign type, but later evidenced malignant pointings, and that the malignant course of the cases in this group exhibited an average duration nearly half again as long as occurred in cases of Group 1 in which no previous gastric disorder had been observed.

CLINICAL DATA

Appetite.—In six instances (38 per cent.) the appetite was poor. In the remaining cases it was usually fair.

Bowels.—All cases exhibited some degree of constipation.

Weight Loss.—In the two instances of short-term cancer, (the so-called "primary cancers"), the average loss of weight was 17 pounds. In the early period of the group of cases with long-term histories, weight loss generally occurred during the "spells" of the disability, but was rapidly regained during the succeeding quiescent stages. In some of these spells the weight loss ran as much as 35 pounds. In the late stage of cases of this type (the malignant period) the weight loss averaged 31 pounds. It was continuous and accompanied by other evidences of cachexia. Some rapid weight losses were observed, namely, 20 pounds in two weeks.

Abdominal Pain or Distress.—In some degree, this was noted in all patients. It was commonly located indefinitely in the epigastrium, but occasionally the complaint was of distress in the back or the high "pit." In two instances pains of so severe a degree and of such spasmodic character were noted that perforation was believed to have taken place.

In the two cases comprising Group 1 above ("primary cancers") the pain was never severe, never definitely localized, was continuous, but was generally aggravated by the ingestion of food or drink. In these instances the common pain relief was obtained by limiting the amount of ingested food, vomiting at the height of distress, and, occasionally, by alkalies.

Of the fourteen cases included in Group 2 above (those in which the patients had had gastric distress before malignancy became evident), twelve (85 per cent.) had pain in "spells" or "attacks." In seven instances, the pain at such times had borne fairly definite relation to food ingestion; in four instances, even when malignancy had supervened, the food relief of pain persisted. In ten cases former food relief of pain had changed to food aggravation of pain, as the malignant process became manifest. In this group of fourteen cases the common modes of pain relief were vomiting, lavage, limited or varied diet, alkalies, food intake and some form of opiate.

Abdominal Tenderness.—This was exhibited on palpation in all instances. In 38 per cent. it was located generally in the epigastrium. In three instances, the maximum tenderness was in the left epigastrium. In rare instances was abdominal tenderness, such as is characteristic of chronic ulcer of the perforative type, noted even when laparotomy showed that the peritoneum had become extensively involved.

---

[4] Mathieu: Semaine méd., 1895, p. 225.

Epigastric Tumor.—Tumor was palpated in six cases (38 per cent.) in the entire series (See Table). In but one instance was a large mass demonstrable. In the cases presenting no definite tumor, peculiar stiffness of the abdominal wall with a sense of deep resistance was frequently observed.

Four times free fluid was shown to be present in the abdominal cavity before laparotomy. These were inoperable cases. In three, metastases, as in the left supraclavicular region and pelvis, were noted before operation. These patients had hopeless involvement.

Eructations and Pyrosis.—These were commonly noted, particularly when gastric motility had been interfered with.

Vomiting.—Vomiting, with or without nausea, was observed in all the cases at some time (usually in the terminal stage) in the course of the disease. In the two "primary cancers," vomiting came on daily soon after taking food, was large in quantity, rancid in odor, but never "coffee-colored."

In the fourteen instances in which malignancy had terminated a long-term gastric history, vomiting occurred from one to eight hours after meals; in but one instance was it "coffee-colored;" in all instances it contained food particles, was of a rancid odor and relieved abdominal distress. In eight cases "delayed" vomiting was observed. Such sign was usually associated with pyloric stenosis and huge, dilated stomach.

LABORATORY DATA

Blood.—In the fourteen instances in which the hemoglobin was estimated, it averaged 66 per cent. The range was from 25 per cent. to 70 per cent.

Stool.—In ten instances (62.5 per cent.) altered blood was chemically demonstrated by the benzidin or the guaiac tests.

Test-Meals.—In fifteen instances facts of much interest were obtained by this mode of examination of gastric function. One case returned no information by test-meal analysis because the stomach-tube could not be advanced beyond the cardia. There was obstruction due to extensive local growth.

Gastric Emptying Power.—In eleven cases (73 per cent.) motility was interfered with and there was retained food at the end of twelve hours. In such instances, dilatation of the stomach of various degrees had invariably occurred.

Gastric Acidity.—In no case was achylia shown. The average *total acidity* was 59. It ranged from 28 to 64.

Free hydrochloric acid was absent in but one instance. This was a case of fulminant, primary cancer. The average free hydrochloric acid estimation for the entire series was 26. It ranged from as low as 3 to as high as 60. The highest free hydrochloric acidities were noted in association with large, cancerous ulcers.

Combined hydrochloric acid and acid salts averaged 18.1. It ranged from 0 to 50.

Lactic acid was demonstrated by the modified Uffelmann test in six cases (40 per cent.).

Altered blood was proven by chemical test in gastric contents twelve times (80 per cent.).

Microscopic Examination of Unfiltered Gastric Extracts.—In but six instances (40 per cent.) were organisms of the Boas-Oppler group definitely identified. In eight cases (53 per cent.) yeasts and sarcinae were present. Microscopic food bits were recognized in nearly 90 per cent. of instances.

THE LAPAROTOMY FINDINGS

Two cases had been explored before coming to us. Both the patients had been operated on within the year. At both abdominal sections the surgeon had made a clinical diagnosis of "benign" gastric ulcer of the chronic type, yet both of these patients were dead from inoperable, general cancer *before a year had elapsed!* The resection of the ulcer or the microscopic examination of a bit of extirpated tissue at the time of the initial laparotomy doubtless would have made known earlier the prognosis and have prevented further surgery. It might have saved life.

Location of the Malignant Process.—Abdominal section revealed five instances in which the pylorus was involved; nine cases in which the lesser curvature and some part of the surface of the viscus were affected; one instance of infiltration at the cardia, and one case of general carcinosis.

Lymph-nodes had been invaded in fourteen out of the sixteen cases in this series. Nine times secondary growths were demonstrated in the liver, pancreas, omenta or pelvic organs.

Character of Neoplasms.—In eight instances, extensive ulcera carcinomatosa were present. They were of the medullary type. In the remaining cases, adenocarcinomatosa of the common type were demonstrated.

OPERATIVE PROCEDURES AND OUTCOME

In four instances exploration only was possible. In five cases some form of resection was performed with or without gastrojejunostomy. In the remaining seven patients "drainage operations" to fit the case at hand were devised.

Nine patients died within one and one-quarter years following operation. To the other patients of this series was granted a lease of life of from two to more than five years.

122 South Michigan Boulevard.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. JOSLIN AND SMITHIES

Dr. J. N. Hall, Denver: There are certain chances of error in the diagnosis of gastric ulcer that do not come to one's attention unless the cases come to operation. In case hemorrhage occurs it draws attention to the possibility of ulcer and makes the diagnosis easier. I recently had a case showing pain, hyperacidity and distress and I found that the patient had had trouble ten years before. I believed that this was undoubtedly a recurrence, and had expressed that opinion to the surgeon. At exploratory operation we found the marks of an old ulcer 4 or 5 inches from the pylorus, a condition which it would have been impossible to diagnose without operation. The acute symptoms were caused by a chronic intermittent pinching of the pylorus in a Treitz's hernia which caused the blood to leak through into the stomach. In another case there had been a long-continued history of gastric symptoms in a patient who came from the country and who was a hard drinker; when I saw him he was nearly moribund from a violent hemorrhage believed to be from ulcer. I found it due to a thrombosis of the superior mesenteric artery, associated with cirrhosis of the liver which had followed alcoholism. In another case there was a chronic pinching of the superior mesenteric vessels under the root of the mesentery. For a long time there was slow bleeding, leading us to believe he had an ulcer, but none was found. I have seen two or three cases from three to six months after appendicitis with symptoms of ulcer caused by dragging down of the pylorus by the omentum. Some of these cases have obscure and continuous pain and it is difficult to figure them out. Time and again, I have found a minute hernia, not larger than a grain of wheat, and these slight hernias often give the symptoms of pyloric ulcer. This is probably caused by chronic reflex irritation of the stomach which continues until symptoms of ulcer appear. Again we see patients with the severe pain associated with ulcer, and with jaundice. Two or three operations have been performed with the idea that we were dealing with gallstones, because of the pain and jaundice, and the surgeon was chagrined when the real condition was found to be duodenal ulcer. In such cases the large duodenal ulcer had spread and compressed the common bile duct.

Dr. F. B. Lund, Boston: Dr. Joslin's paper gives a good idea of the ultimate results in surgery of the stomach. I do not think, however, that he ought to speak of a surgical mortality of 20 per cent. in gastric ulcer without making it plain that that is not the operative mortality. The operative mortality in my own cases is 5 per cent. The function of the surgeon in gastric ulcer is to interfere in cases which have resisted medical treatment and alter the conditions so that the ulcer may heal. This good end is accomplished in from 60 to 80 per cent. of the cases that are operated on. I understand that Dr. Joslin reported a case of duodenal ulcer in which the patient died in the sanatorium six months after the operation, as a surgical death. To my mind, this was not a surgical death, but a surgical failure; surgical interference failed to cure the ulcer and the patient died in six months, not because of, but in spite of it. Only those who die while still in hospital should be called surgical deaths. This, of course, would make the surgical statistics look very much better.

Dr. Frank Billings, Chicago: I think Dr. Joslin's statistical paper is only of relative value. Dr. Joslin acknowledges that the diagnosis of ulcer was not made in some of the earliest cases seen and that some of the patients were seen only in consultation. Therefore, there may be a question of diagnosis in some of the series. Thirty surgeons operated on thirty patients. How many physicians managed the medical treatment? What operations were performed? What was the medical management? If medical treatment failed, why? Of what did the patients surgically treated die? My experience is that ulcer of the stomach is usually mismanaged medically by the average practitioner. Statistics, to mean anything of value, must be more explicit in details of both medical and surgical treatment.

Dr. J. A. Lichty, Pittsburgh: It seems from Dr. Joslin's paper that neither the medical nor surgical treatment of ulcer is altogether ideal. From his paper we learned that 43 per cent. of the 213 cases were supposed to be cured. This is, of course, a low percentage of cures in a condition which is, after all, not so frequently fatal. This may be explained by the facts submitted. It seems the patients were not seen by the internist until the ulcer had run a course, on an average, of five and one-half years, or by the surgeon until the ulcer had run a course, on an average, of ten years. It is to this part of Dr. Joslin's paper I wish to direct attention—the necessity for early recognition of gastric and duodenal ulcer. The low percentage of cures is due more likely to the length of time which expires before any proper treatment is undertaken. The irreparable damage occurs before the internist sees the patient and not during the interval between the internist and the surgeon. In other words the patient likely lost his chance for cure before either internist or surgeon saw him. This is a difficult problem to meet. It is not always the fault of the physician. The patient will carry soda-mint tablets and alkaline powders for years before consulting a man who is capable of diagnosing gastric or duodenal ulcer, and it is not the fault of the laity alone; even physicians themselves in their own cases pursue the same course. In our teaching in medical schools, the symptoms of so-called "dyspepsia" should not be considered lightly, but should be looked on always as the evidence of some pathologic condition until the contrary is proved. If all the means at our disposal are employed it is not so difficult to make a diagnosis in early cases of acute or open ulcer. It is only after ulcers have been present for some time that they become so difficult to diagnose. We have now many tests, as for occult blood in the stools, the string test, roentgenoscopy, gastroscopy and others. If all the tests are employed and the patient's history carefully studied the diagnosis can be made easily in the early cases of open ulcer. I am sure this 48 per cent. of cures can be brought up also by teaching the laity to apply early for treatment in cases of gastric disturbance. If patients are seen during the first month or during the first two or three, or even five months, and proper medical treatment is instituted, I am sure more than 48 per cent. will get well.

Dr. Alexander Lambert, New York: Did Dr. Joslin try to calculate the end-results with the two surgeons who had 34 cases and the thirty surgeons who operated in the 30 cases? What was the difference in results between those who were in the habit of performing these operations and those who performed them relatively infrequently? It is known that the gastro-enterostomy opening into the stomach is apt to close if the pyloric opening remains patent. It is only when the pylorus is definitely stenosed that the gastro-enterostomy remains open. If 45 per cent. of the patients operated on, and about 50 per cent. of all patients treated medically remained unimproved, it must show that neither medically nor surgically have we worked out a successful treatment for these chronic ulcers of the stomach. Of course there is no question that in those old chronic ulcers in which there is scar tissue and a stenosis or deformation around the pylorus and a definite mechanical obstruction at this point, surgical procedure is the only method by which relief may be obtained. In other chronic ulcers, however, without the deformation of the stomach, so many different kinds of medical treatment have been tried that it is impossible to say, by any given set of statistics, whether or not really purposeful medical treatment had been accurately carried out. Until we are able to answer the questions of etiology of duodenal and gastric ulcer and base our treatment on this knowledge, it does not seem to me that we will be able to obtain much better results than those that are reported by Dr. Joslin, for if medical treatment gives but 39 per cent. of so-called cures and surgery gives but 45 per cent., there is such little difference between these results that it cannot be said that either one or the other offers much advantage, and neither medicine nor surgery has, as yet, worked out a proper method of treating these ulcers of the stomach and duodenum.

Dr. F. A. Speik, Los Angeles: What Dr. Billings and Dr. Lambert said is true. Patients do not pay enough attention to the early symptoms of ulcer, but it is also true that the physician whom they consult early does not work hard enough to determine whether the diagnosis should be of gastric and duodenal ulcer. Diagnoses are made of indigestion or dyspepsia and the patient is put off with palliative treatment. Many of Dr. Joslin's cases came to him eight or nine years after the onset. They surely consulted some physician before they did him, but the correct diagnosis was not made. Dr. Joslin's medical failures are not due to incorrect medical treatment, but they are due to the lack of early recognition, and therefore due to the lack of proper treatment. Many of his cases presented surgical complications when they came to him. Surely he cannot call all surgical cases medical failures, because not only are the ulcers not recognized and not treated, but also many are latent until some such surgical complication as mechanical obstruction, perforation, perigastric adhesion, etc., takes the patient to the physician. These must be recognized as surgical cases and not treated medically. There are definite indications for medical treatment and relative and absolute indications for surgical treatment. The surgical cases are those that may be relieved mechanically, such as perforation, which demands immediate diagnosis and operation, pyloric obstruction with actual cicatricial narrowing, with obstruction of high grade (but pyloric closures due to inflammatory swelling and spasm are medical cases), perigastric adhesions, hour-glass stomach, etc. Hemorrhage in 97 per cent. of the cases calls for medical treatment. In a medical case a gastro-enterostomy does not necessarily heal the ulcer. If the pylorus is patent the gastric juice will continue through it and take off the granulation tissue and the ulcer does not heal. In Dr. Sippy's clinic, motor meals on the gastro-enterostomized stomach show that the stomach does not empty itself faster than normal. Our failures in gastric and duodenal ulcer are due to the lack of early diagnosis and the lack of an energetic medical treatment. The medical man should work harder to make the early diagnosis of ulcer and should also pay more attention to detail in his treatment; then there will be fewer medical failures.

Dr. Allan A. Jones, Buffalo; There should be no unpleasant contention between the medical and the surgical men with respect to the care and treatment of gastric and duodenal ulcer. I often wish that medical men could operate, not that they would operate so often as surgeons do, but that they might apply this form of mechanical therapeutics. What is surgery but mechanical therapeutics? It is not a question of medicine or of surgery but of the accurate diagnosis in a given case at a given time and in a given condition. If the patient does not make satisfactory progress under medical treatment then one should resort to surgical treatment. Statistics are apt to be misleading and are sometimes useless, but if Dr. Joslin's paper shows anything it is that our best results follow medical treatment, but that at the proper time and under proper conditions surgery must be chosen. So far as the results of medical treatment in gastric and duodenal ulcer are concerned, the real and only valuable statistics we could compile would be compiled by personal supervision of every patient in the hospital kept under the immediate care of special nurses, as the control of the diet is most important. It is difficult to control the patient's diet when he is out of the hospital. Von Leube, some years ago, reported 556 cases in which the treatment consisted of absolute rest in bed, a milk diet, the application of poultices over the epigastrium and the administration of little or no medicine, and in these there were 95 per cent. of cures. I do not know the end-results in this series of cases, nor do I know how many recurrences there were, but there was probably a large number. The study of the end-results in a series of cases, as made by Dr. Joslin, is timely and important.

Dr. J. R. Verbrycke, Washington, D. C.: I call attention particularly to the thread test, the benzidin reaction for occult blood and the roentgenogram. With a few exceptions I hold the clinical history subservient to these tests. A thread smeared with blood does not always positively indicate an ulcer, but small localized spots always in the same place on several threads has in my experience been almost infallible. I rarely make a positive diagnosis of ulcer without a positive benzidin reaction. When we learn the value of these tests as well as their limitations, we will make much earlier diagnoses and so secure better end-results. I am still finding more gastric than duodenal ulcers. The number of duodenal cases has markedly increased, but through our increasing facilities for diagnosis the gastric ulcers have kept pace. By the thread and the roentgenogram—the only reliable means of localization—I am finding many to be on the lesser curvature and have encountered about thirty in that location in the past two years. The localization of ulcer is important both for prognosis and for the treatment. A duodenal ulcer operated on with gastro-enterostomy and closure of the pylorus usually gives spectacular results, while, on the other hand, ulcer of the lesser curvature may not only be cured by operation but the symptoms may be aggravated unless the ulcer is excised. Our criterion for cure should be just as strict as our endeavor is earnest to make a diagnosis in the first place. It is not sufficient that the patient does not have symptoms. I always have the patient report, after his treatment, once a month for a year bringing a specimen of stool to be examined for occult blood. Occult blood often appears months before a return of subjective symptoms. If the patient has no return of symptoms or occult blood for twelve months, we can call him cured.

Dr. Anthony Bassler, New York: Until more is learned of the etiology and pathology of ulcers, statistics on results of treatment will be useless. To say so many ulcers have been treated either medically or surgically and to give results without discussing the etiology and the varied pathology of ulcers is holding the subject back. I think that Dr. Joslin's statistics present too few cures by both the medical and surgical methods of treatment. I agree with Dr. Billings and Dr. Lambert; the subject cannot be presented *in toto* from the medical or the surgical side alone. The unfortunate status of affairs in this condition makes one case of ulcer in which the etiology and pathology have been worked out of more worth than statistics on a thousand treated in which neither one of these is mentioned. It is probable that so far as results from treatments are concerned, division can be made between soft and hard forms, for in my experience it depends on the absence or presence and extent of fibrous tissue and the character of cell infiltration whether medical or surgical measures are successful. Our knowledge of etiology, the old divisions of pathology, the overusing the length of clinical course for differentiation between acute and chronic forms, and even the revealments of the operating-room are still far short of what we must learn properly to understand gastroduodenal ulcer.

Dr. George Douglas Head, Minneapolis: How long a time have these operated patients been under observation subsequent to operation? We all know that the history of gastric and duodenal ulcers is one of remissions and exacerbations. A tremendous amount of statistical material has been brought to our attention from the surgical clinics during the last few years purporting to give the operative end-results of gastric and duodenal ulcer after one, two or three-year periods. In discussing the cure of gastric and duodenal ulcer, we as medical men are thinking in the terms of five, ten or even more years and our statistics are based on these figures, while the surgeons are giving their results in terms of one, two, or at most five-year periods. No surgical statistics exist showing the results of operative treatment over a ten-year period. In order intelligently to compare the end-results of the surgical and medical treatment of gastric and duodenal ulcer the same standard of time interval must be adopted by both surgeons and internists. Over how long a period of time were Dr. Joslin's series observed subsequent to operation? We must not deceive ourselves in the analysis of statistical material offered in proof of one method or the other for the cure of gastric and duodenal ulcer. We must approach the whole subject in a broad but scientifically critical spirit.

Dr. J. D. Dunham, Columbus, Ohio: The occurrence of gastric cancer in patients under 30 years of age is quite infrequent. I have seen three, in two women and one man, aged 18, 24 and 30 years, respectively. In every instance there was increased hydrochloric acid and the total acidity was increased. All were of the fulminating type. All three cases were proved by operation and histologic examination of the specimens to be true cancer.

Dr. M. H. Fussell, Philadelphia: I have not heard a word spoken of indigestion; it has probably been purposely left out. Yet I would venture to say that practically every patient whom Dr. Joslin has seen was treated for indigestion long before it was thought that the condition was gastric or duodenal ulcer to be treated either medically or surgically. Many cases will continue to be treated for flatulence, epigastric pain and disturbance and for indigestion until they are far beyond hope from medical treatment and in many cases from surgical treatment. It is a fact that numerous conditions bring about symptoms which are called indigestion. The functional cases of indigestion are not due to any surgical condition whatever. In such conditions as gastric ulcer, infectious gall-bladder disease, chronic appendicitis, carcinoma, and others, the true condition is often not recognized until the patient is far beyond the help of either medical or surgical treatment. When one sees a patient with what is commonly called indigestion, that patient should be gone over carefully from head to foot to find out just what is the matter. Then treatment should be according to the indications. I think we are entirely unjustified in treating these case with alkalies and other internal remedies for months and years until they become difficult to diagnose. It is not the early cases as described in the text-books that are hard to diagnose but the border-line cases. When a patient has been given all the advantages of medical treatment and does not improve it becomes our duty, after a reasonable period, to have an exploratory operation to find out what is the matter, for an exploratory operation is less dangerous than long-continued medical treatment that is giving unsatisfactory results.

Dr. J. M. Rector, Columbus, Ohio: I agree with Drs. Joslin and Smithies in emphasizing the importance of early diagnosis in these conditions of the stomach. I would also call attention to Dr. Vaughn's theory of infection as it relates to the causes of gastric ulcer, and to recommend the trial of certain therapeutic measures before a gastro-enterostomy is determined on. In Dr. Vaughn's theory it is shown that a ferment caused by bacteria infesting the mucosa attacks the mucosa destructively, whereon the body cells, if the cell resistance of the host be sufficient, begin themselves to produce ferments to overcome and destroy bacterial ferments. Thus the resistance of the patient becomes a factor, and the drainage and motor function of the stomach important considerations. In case of interference with drainage, I wish to urge a serious attempt to restore the elasticity and tone of the gastric muscles by pneumatic gymnastic methods before such a measure is resorted to. As Cannon points out, "The essential fallacy in the idea of gravity drainage from the stomach results from a failure to regard the pressure relations in the abdominal cavity. The weight of the alimentary canal, as such, is approximately that of water. The food swallowed or undergoing gastric digestion has approximately the weight of water. The pressure in any part of the inactive alimentary canal, as Weisker proved, is due to the weight of the overlying abdominal organs. If the canal is inactive, therefore, the food is as if surrounded by water. Water resting in water is, of course, in exact equilibrium, and even when the body is in the upright position, and a large artificial opening connects the stomach and the intestine, water will not run out; 'because of the hydrostatic relations in the abdomen, gravity can have no effect.' 'Drainage' in the common usage of that term is therefore impossible. That the food may move onward through the alimentary canal, muscular contraction is necessary to create a difference of pressure." If gastro-enterostomy is done when gastric tone is deficient, it will fail because there can be no drainage without muscular contraction. This is the explanation of "vicious circle," and the reason for the undoing of many gastro-enterostomies.

Dr. Elliott P. Joslin, Boston: I agree with Dr. Lund that if the surgeon gets his cases of gastric and duodenal ulcer in a favorable condition he may obtain from 90 to 95 per cent. of recoveries. Dr. Lichty hit the point when he said that cases of ulcer would do better if treated early. In my series of 213 successive cases, there was an average history of six years of discomfort before seeking treatment. I hope no one else will report a series of cases coming to treatment after having suffered so long. I purposely did not attempt to draw comparisons between the thirty patients operated on by thirty surgeons and the thirty-seven operated on by two surgeons, because the number was too small. Probably four-fifths of the surgical cases were treated during the last three or four years; consequently the surgical end-results showing 47 per cent. of cures cover a far shorter period of time than do the medical end-results. The statistics, therefore, are favorable to the surgeon. Dr. Billings criticizes the value of these statistics because the cases have been treated by many medical men and necessarily (?) show very poor results. In the last series of cases which I reported some sixteen years ago, with Dr. Greenough, the criticism was likewise made that the results were unusually poor. In that series 114 cases were reported and it was stated that 80 per cent. were discharged from the hospital cured. At that time the Massachusetts General Hospital was under the dominating influence of two of the best men in medicine in America—F. C. Shattuck and R. H. Fitz—and there is no doubt but that these men carefully treated the patients with ulcer of the stomach. Yet when we came to analyze the 80 per cent. of cures and ferreted the patients out after five years, we found that only 40 per cent. were well or even relieved, quite as in this recent series. There is little doubt that if Dr. Billings studies the records of the Chicago hospitals, he will find 80 per cent. of the patients with ulcer of the stomach or duodenal ulcer have been discharged as cured, but if he should be able to follow 91 per cent. of the series after five years have elapsed, he would probably discover that the percentage of cures had dropped far below that figure. Is it not proper to ask Dr. Billings to present a similar series of 234 or more cases of gastric and duodenal ulcer and to trace out the end-results of 91 per cent. of them after a period of five years? Should this be done, I think he would allow that our statistics are correct. In the paper we did not attempt to discuss the medical treatment of ulcers, but rather to show what happened to patients who had had the disease, in the hope that we all might treat our patients better.

Dr. Frank Smithies, Chicago: The whole subject of gastric ulcer is in a state of transition. Confusion arises from medical men trying to interpret surgical statistics, and vice versa. The life history of chronic peptic ulcer is one of periodicity of symptoms and signs. It is a disease prone to recover and recur, seemingly quite irrespective of what type of medical treatment we use. Many cases called "medical gastric ulcers" have been shown by laparotomy not to be ulcers at all. This is especially true in persons under 30 years of age. In these patients, practically the same clinical picture is presented when the lesion is in the appendix or gall-bladder. In this event pyloric spasm, and vagotonic hyperacidity are responsible for the discomfort. Unfortunately, the statistics of peptic ulcer have been confused by this false ulcer group. "Medical ulcers," so-called, do, however, occur. They are apparently, in their life history, quite a different pathologic process from the chronic ulcer. Hence, this type of ulcer cannot in any way be compared, statistically, with the "surgical" ulcer. A medical ulcer is something that can rarely be seen or felt and manifests itself only by its symptoms, whereas, a "surgical" peptic ulcer can be seen and felt, examined pathologically, and definitely described and recorded. It would seem that Dr. Joslin is quite justified in giving the statistics that he has presented. It shows us our limitations in the subject. He has gone quite as far as possible in the comparison of things, which, from their different clinical and pathological nature, it is impossible to compare. Concerning the value of the occult blood-tests and the "string test," both these maneuvers may lead us to make grave mistakes, unless carefully checked. I have used three hundred strings. In 167 instances, peptic ulcer was proven operatively. In but seven instances were the findings suggestive of a "positive" string-test. When it is recalled that ulcers only bleed intermittently, it will be seen what a factor of chance there is in relying on this test for useful, clinical information. Tests for blood in the feces by means of guaiac or benzidin must be very carefully interpreted. Patients on a meat-free diet may give typical reactions if they are eating chlorophylaceous vegetables, or food rich in iron compounds.

Black Versus White Operating Sheets.—Black and white operating sheets are compared in the 1913-1914 "Report of the Medical and Sociological Departments of the Colorado Fuel and Iron Company" as follows: "The advantages of a dark sheet are: It absorbs light, rests the eye, and the predominating reflection is from the wound. The disadvantages of the white sheet are: It reflects strongly, tires the eye and produces feeble contrast. It is contrast that is desired. The dark sheet is to the surgeon what the dark room is to the ophthalmologist."

LANDRY'S PARALYSIS

REPORT OF A CASE, WITH NECROPSY *

EDWARD D. FISHER, M.D.
NEW YORK

Many cases have been reported since Landry first described a disease characterized by a rapidly ascending paralysis passing from the lower to the upper extremities, thence to the cranial nerves, causing various paralyses, and ending fatally in the course of six or seven days with involvement of the vagus and respiratory failure. The pathologic changes in the early cases were negative. This may have been due to the insufficient methods of examination in part, but even in later reports very few changes have been found at times, as in the case fully reported by Pfeiffer,[1] in which changes in the peripheral nerves only were found to be present.

In the literature of this subject, which is considerable since Landry in 1859 described his case, we find various lesions recorded in which either polyneuritis or spinal cord or bulbar inflammatory involvement has been present, or all in combination. Leyden and Goldscheider hold that it may assume any or all of these forms. The cord changes are usually hyperemia, perivascular infiltration and hemorrhage; at times interstitial neuritis. All authors agree that it is of infectious origin and attempts have been made to isolate a specific organism.

The case I shall record may be of interest, as it was observed from the onset, and a careful post-mortem examination has been made.

History.—W. E., boy, aged 15 years; previous history negative. Sept. 27, 1913, he complained of pain and weakness in the lower extremities, which increased in severity until October 11, when he was admitted to St. Vincent's Hospital, in New York, in the service of Dr. Constantine J. MacGuire. Examination of the heart and lungs and abdominal organs was negative. There was paralysis of the lower extremities, with loss of reflexes and tenderness over the larger nerve trunks. No anesthesia.

Laboratory Findings.—The urine was negative. The spinal fluid was clear; Fehling's reduction test was positive; the globulin was slightly increased; cells were 7 per c.mm. Smears and cultures for bacteria were negative. The Wassermann was negative; throat cultures negative. An examination of the blood showed 23,500 white cells, with 86 per cent. of polymorphonuclears, 2 per cent. of transitionals and 12 per cent. of lymphocytes. October 17 there was paralysis of the external rectus of the left eye. The eye grounds were negative.

Course.—The weakness gradually extended to the upper extremities, with loss of power, which in the course of a week became complete in the hands and arms. October 29 there was difficulty in swallowing and complete paralysis of the muscles of the right eye and of the superior oblique of the left eye (Dr. Kelly). November 7 there was dyspnea and difficulty in swallowing. All of these symptoms gradually increased in severity, and death occurred November 21 from respiratory failure.

Necropsy.—The necropsy, macroscopically, showed intense congestion of the cord; no other lesion. Microscopically, there was an interstitial neuritis of the sciatic nerve and congestion of the anterior horns, without perivascular infiltration or meningeal involvement. The medulla showed involvement of the cranial nerve nuclei and degeneration of the axis cylinders for a short distance from the cell body. The whole picture differentiated it from poliomyelitis. The brain, at the time of this report, had not been examined. The microscopic study of the case was made by Dr. John H. Larkin.

CONCLUSIONS

We have here, therefore, a case of ascending paralysis, with attending neuritis, which followed the usual course of extension, later involving the upper extremities and the bulbar nerves, resulting in respiratory failure. The pathologic findings are definite, involving both the peripheral and central nervous systems. The course of the disease was longer than that usually described, extending over six weeks, but otherwise the case was typical in its clinical manifestations.

46 East Fifty-Second Street.

ABSTRACT OF DISCUSSION

Dr. Walter B. Swift, Boston: The great question in this field of investigation, as everybody knows, is whether or not Landry's paralysis and anterior poliomyelitis are identical disease-entities. It seems strange that, as the years go by and these cases of Landry's paralysis appear, no one takes the crucial step that is to result in determining this point. The research that would do it is this: Emulsify the cord from a Landry's paralysis patient and inject it into a monkey. If the animal has anterior poliomyelitis in consequence, the identity would be indicated.

Dr. Edward D. Fisher, New York: That would, of course, be a very essential point if we could get it done. It depends more or less on the pathologic findings. As stated, the report of the case from the pathologic findings would seem to put it outside of the possibility of being poliomyelitis. No micro-organisms were found. The final test would be as mentioned by Dr. Swift.

---

* Read before the Section on Nervous and Mental Diseases at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

[1] Pfeiffer: Brain, 1913, xxxv, part 4.

MORBIDITY REPORTS AND STATISTICS *

A DISCUSSION OF THE PROVISIONS OF THE MODEL STATE LAW FOR THE REPORT OF CONTROLLABLE DISEASES

JOHN W. TRASK, M.D.
Assistant Surgeon-General, United States Public Health Service
WASHINGTON, D. C.

EVOLUTION OF HEALTH DEPARTMENTS

While in this country city boards of health in some instances date back more than a century, and state boards of health have been in existence, some for as long as fifty or sixty years, there has been during the last ten or twenty years a marked growth in their activitives. Health departments are going through a process of evolution, in which they are seeking to adjust themselves to modern thought and recently acquired knowledge. They are in one of the crucial formative periods.

Realizing that they are destined to occupy a broad field, health departments have taken on themselves or had given to them one activity after another, some intimately related to the public health, others in which this relation is more remote. In this taking on of new activities, there has appeared to be a tendency in many instances to forget or ignore the central idea for which they have been founded and about which they must evolve, the control and prevention of disease. There has been a tendency for health departments to take unto themselves the control of all things relating directly or indirectly to the public health and many things relating more especially to social betterment. This course offers special difficulties, as well-nigh all things the community does, practically all its activities, are related more or less closely to its health. There is hardly a department of city or state government which in its activities is not associated at least remotely with the general health.

---

* Read before the Section on Preventive Medicine and Public Health at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

CENTRAL IDEA OF HEALTH DEPARTMENTS

The work which must remain the central idea of the health department is the control of disease.

The control of disease depends on knowledge of its prevalence and the conditions under which it occurs. It has repeatedly been possible to eradicate yellow fever by acquiring exact information of the occurrence of each case. It will be just as necessary to secure similar information of the ocurrence of cases, to eradicate or to control effectively any of the equally dangerous, but more common, preventable diseases. It will probably be found as easy to eradicate typhoid fever or tuberculosis from a community as it is to eradicate yellow fever. In the future, public opinion will probably make it the duty of health departments to eradicate these diseases or at least to maintain an effective control over them. When this time comes health departments will need to be larger than at present and have increased appropriations. There is hardly a state or city health department in the continental United States, the total appropriations of which might not be economically and advantageously expended in the control of any single one of the commoner communicable diseases, such as scarlet fever, typhoid fever, or tuberculosis. One of the first requirements of the future health department will be exact information of the occurrence of each and every recognized case of the diseases it is attempting to prevent.

The need of having this information of the prevalence and geographic distribution of diseases has been realized by physicians in the United States for many years, and the subject has repeatedly come before the American Medical Association in one form or another. At the meeting in 1855 the following resolution offered by Dr. J. W. Thomson was adopted:

> Whereas, few subjects of greater interest and importance could be presented to the consideration of the American Medical Association, now representing most of the States and Territories of the Union, than the attainment of a correct medical topography of each, with a history of its prevailing diseases, and most successful treatment of the same; therefore be it
>
> *Resolved*, That with this view and conviction, this Association appoint a special committee for each State and Territory represented, . . . whose duty it shall be to report on its medical topography, epidemic diseases, and the most successful treatment thereof, and that the same shall continue to hold their office for three years. . . .

At this meeting Dr. J. G. Orton introduced a resolution supplementing the preceding. The resolution, which appears not to have been adopted, was in part as follows:

> *Resolved*, That each county medical society, or (in parts of the country where such has not been established), any duly organized medical association, be requested to amend its constitution by attaching therunto the following article:
>
> "It shall be the duty of each member of this society to keep a faithful record of the diseases which may fall under his observation during each month, according to the classification adopted by this convention in May, 1847, stating the age and sex, occupation and nativity of the patient, the average duration of the disease, and finally, their recovery or death, and to report the same in writing to the secretary, on or before the first day of February of each year, who shall transmit a digest thereof to the State Medical Society and also to the appropriate committee appointed by the American Medical Association for its reception."
>
> *Resolved*, That each incorporated hospital, infirmary and asylum be invited to furnish a copy of their annual reports for the use of the committee of their respective states.
>
> *Resolved*, That the state committees appointed by this Association to report on the prevailing diseases of their respective localities, shall receive and arrange a digest of the reports transmitted to them by the secretaries of the various county societies, and report the same at the annual meeting of this association.

In 1883 Michigan passed a law requiring householders, hotel keepers, keepers of boarding-houses, or tenants, to report immediately to the health officer or board of health all cases of "small-pox, cholera, diphtheria, scarlet fever, or any other disease dangerous to the public health."

The notice was to state the name of the patient, the name of the disease, and the name of the householder or hotel keeper giving the information; also the address where the patient was to be found. Physicians were similarly required to report cases and when the physician reported a case the householder or hotel keeper was not required to do so.

The Michigan law seems to be the first one looking toward the comprehensive collection of information with regard to the prevalence of disease, and for a number of years the work was carried on with intelligence and perseverance under the able supervision of Dr. Henry B. Baker, then secretary of the state board of health.

IMPORTANCE OF MORBIDITY REPORTS

The question of morbidity reports is one of the most difficult problems to be solved by the state authorities. A number of states have been endeavoring earnestly to solve the problem within their respective jurisdictions. Considerable progress has been made in several instances. In 1912 the State of Virginia had 31 cases of diphtheria reported for each death registered, the District of Columbia had 26 cases for each death, Rochester, N. Y., had 31, and Salt Lake City had 53. In the same year Virginia had over 16 cases of typhoid fever reported for each death, Hartford, Conn., had 19 cases, Denver, 16 cases, and Worcester, Mass., 14 cases. With morbidity reports of this degree of completeness the respective health departments have definite information of the prevalence of these diseases and the conditions under which cases are occurring. They possess information which makes them masters of the situation at all times.

The administration of health matters comes within the jurisdiction of the several state authorities. It belongs to the police powers retained by the states, and not delegated to the Federal Government. This makes in the continental United States forty-eight sanitary authorities, and makes it possible to have forty-eight different laws, each with different requirements, for every phase of public-health administration. While this is possible it is by no means necessary nor is it for the common good. The identity of needs and purposes should and will cause a mutual exchange of ideas and a general selection of the best for common adoption. Thus, the states will develop a closer union in sanitary administration.

For this purpose some form of public-health congress or council with representatives from the several states is necessary. With this idea in mind the Congress of the United States in 1902 provided for conferences of the state and territorial health authorities with the Federal Public-Health Service. These conferences have been held annually and at the one held in Minneapolis in June, 1913, there was adopted a standard model law for morbidity reports. The law was drafted in tentative form by a committee appointed two years before and was the subject of full discussion and amendment by the conference.

A discussion of the provisions of this law cannot be other than of interest to all in any way connected with public-health administration.

MODEL HEALTH LAW REQUIREMENTS

Section 1 of the law makes it the duty of the state department of health to keep currently informed of the occurrence, geographic distribution and prevalence of the preventable disease throughout the state, and for this purpose establishes in the state department of health a bureau of sanitary reports.

The purpose of this section will be apparent to all familiar with the control of disease. The only rational reason for the existence of a state department of health is that it may control the controllable diseases throughout the state either directly or through the local health authorities. In either instance disease cannot be controlled in the absence of dependable current information of the occurrence and geographic distribution of the cases.

No one would think of attempting to control cholera, plague, or yellow fever without providing for some means of getting early information of each case. This is one of the things to be considered and for which provision must be made in every sanitary campaign against these diseases, but it is just as true in the control of any other disease. Whenever a health department sincerely attempts to lessen the prevalence of tuberculosis in its jurisdiction it will need to know of, and will require the notification of all cases of the disease. Whatever control the health department can exercise over such diseases as diphtheria, scarlet fever, measles, epidemic cerebrospinal meningitis, can be exercised only through a knowledge of the occurrence of cases. Communities in a measure control the incidence of typhoid fever by the installation of pure water supplies and in some cases by requiring the pasteurization of milk, but these things are but factors. Pure water and pasteurized milk will but lessen the incidence of typhoid fever, and a knowledge of the occurrence of cases is still necessary not only to control the other factors which spread the disease, but to know when the measures taken are inefficient or need adjustment. Given a city with an absolutely pure water-supply and with the lowest of typhoid-rates, it would still be necessary that any cases that did occur should be immediately reported because each case would show a break in the community's sanitary wall which needed attention.

Vaccination and re-vaccination will protect a community against small pox. Nevertheless, that community would be foolhardy and unmindful of its welfare which did not require the notification of cases of this disease, for occasional cases may occur even in the best vaccinated communities. What is true of this disease is true of every other. Control is impossible without a knowledge of when and where, and under what conditions cases are occurring.

Section 2 of the law names the diseases of which cases shall be notified. The list is divided into four groups: (1) infectious diseases, (2) occupational diseases and injuries, (3) venereal diseases, and (4) diseases of unknown origin. The first three groups include most of the diseases which occur in this country and which, with our present knowledge, may be controlled. They consist of the diseases for the control of which presumably health departments have been established.

Group 1 includes the infectious diseases, among which will be found those which have been reportable in many states for some time.

Group 2 includes occupational diseases and injuries. Occupational diseases constitute a class which in this country have but recently received anything like the amount of attention they deserve. Practically all occupational diseases are preventable and are subject to control. During the last fifty years there has come about a marked change in industrial conditions, not only in the United States, but in other countries as well. There have grown up immense manufacturing plants, large shops employing thousands of hands. There have been developed new and complex labor-saving machines, new processes have been evolved, new fabrics and materials are now being used and with this evolution of industrial methods and conditions there have arisen new occupational diseases and an increasing incidence of older ones. In an industrial community approximately one-third of the population is engaged in shops and factories, or similar places of labor, so that industrial hygiene and the prevention of occupational diseases has grown apace with our industrial development until industrial hygiene now constitutes an important factor in national and community hygiene.

Since 1911 fourteen states have enacted laws requiring the report of certain, or all occupational diseases. These laws for the most part have been impossible of enforcement, at least they have been in most instances unsatisfactory. Nevertheless, they show a recognition of the importance of knowing where cases of occupational diseases are developing. Every case of occupational disease shows the existence of conditions capable of producing disease, conditions which should be removed so that they will not produce the diseases in others. The first step in the control of occupational disease, as in the control of other diseases, is to secure a knowledge of where and under what conditions cases are occurring.

Group 3, the venereal diseases, constitute a group which offer great difficulties in their control. It will be a long time before it will be possible to have all cases of these diseases notified. They have been made notifiable in a number of states and properly so, for there are few diseases which cause more injury to the community than do these. Every case represents a focus of infection from which the disease may be and usually is spread to others, and it is only proper that each and every case be so controlled that it shall be impossible for the infection to be spread.

The fourth group of diseases includes pellagra and cancer, diseases of unknown origin, and the purpose of the notification of the existence of these is, not that the disease may be controlled, but because of the possibility that a knowledge of the relative prevalence and geographic distribution of these diseases and the conditions under which cases occur may be of assistance in the search for their origin.

Section 3 of the law requires physicians to report each and every case, or suspected case, of any of the notifiable diseases in his practice to the local health officer, this report to be made either by mail or by special messenger. The report, which is to be in writing, is to show the date; the name of the disease or suspected disease; the name, age, sex, color, occupation, address, and school attended or place of employment of the patient; number of adults or children in the household; the source or probable source of infection or the origin or probable origin of the disease, and the name and address of the reporting physician. If the disease is, or is suspected to be small-pox, the report in addition is to show whether the disease is of the mild or the virulent type, and whether the patient has ever been successfully vaccinated. If the patient has been successfully vaccinated, the number of times and the dates, or approximate dates of such vaccination are to be given. If the disease is, or is suspected to be, cholera, diphtheria, plague, scarlet fever, small-pox, or yellow fever, the physician is, in addition to the written report, to report the case immediately to the local health officer in the most expeditious manner available. If the disease is, or is suspected to be, typhoid fever, scarlet fever, diphtheria, or septic sore throat the report is also to show whether the patient has been, or whether any member of the household in which the patient resides, is engaged or employed in the handling of milk for sale or preliminary to sale.

The reason for the various data required in the report is readily apparent. The dating of the report is necessary. The giving of the name, age, sex, color, occupation and address are necessary for identification and for statistical purposes. The school attended or place of employment gives early information to the health department as to where the disease has been contracted and also where others have been exposed and contacts will be found. The number of adults and children in the household indicates the nature of the precautions that will need to be taken to prevent the spread of the disease, while the stating of the source or probable source of the infection or origin of the disease by the physician would often give useful information to the health department. The requirement for the notification of cases of disease should always provide for the report of suspected cases, and there should be connected with every health department an expert diagnostician of the controllable or notifiable diseases.

A health department that has not on its staff such a diagnostician is not in a position to control the notifiable diseases. Much as one might wish to believe that physicians never err in diagnosis, in practical health administration one is compelled to face the fact that many physicians see few of these diseases and their experience is therefore limited. The most, therefore, that a physician should be asked to record on a notification report is that the disease is, or is suspected to be of a certain kind. The health department should verify the diagnosis. The provision requiring that in cases, or suspected cases of cholera, diphtheria, plague, scarlet fever, small-pox, or yellow fever, the physician shall, in addition to the written report, give immediate notice to the health department in the most expeditious manner available, enables the use of the telephone or at times of the telegraph, or in the absence of these means a special messenger might be used. The need for the expeditious notification of these diseases does not require explanation.

The requirement that in cases or suspected cases of typhoid fever, scarlet fever, diphtheria, or septic sore throat the reports shall also show whether the patient has been, or any member of the household in which the patient resides is engaged in the handling of milk, is made because of the well-known fact that these diseases are frequently spread by milk, and the control of the disease and the protection of the community depends on the protection of milk-supplies from persons infected with these diseases.

The requirements of Section 4 with regard to the notification of cases is made to apply to patients in hospitals or other public or private institutions and to physicians attending these patients.

Section 5 of the model law provides that whenever a person is known to be, or is suspected to be affected with a notifiable disease and no physician is in attendance, then an immediate report of the case shall be made to the local health officer by the person in charge of the patient. Teachers, or other persons employed in public or private schools including Sunday schools are required by the law to report immediately to the local health officer each and every known or suspected case of a notifiable disease in persons attending or employed in their respective schools.

The blanks to be used in making the written reports are to be supplied by the state department of health through the local health officers and are to conform to a standard form adopted by the conference of state health authorities. These blanks are printed on a post-card. This is believed to be the most convenient form of report for the physician as it does not require an envelope and needs no addition of postage.

Section 8 requires local health officers within seven days after the receipt by them of reports of cases of the notifiable diseases to forward by mail to the state department of health the original written reports made by physicians, after having first transcribed the information given in the respective reports in a book or other form of record for the permanent files of the local health office. On each report thus forwarded the local health officer is to state whether the case to which the report pertains was visited or the case otherwise investigated by a representative of the local health office, and whether measures were taken to prevent the spread of the disease or the occurrence of additional cases. If the patient was not visited or otherwise investigated by a representative of the local health office it is evident that the diagnosis might have been incorrect, and if no measures were taken to prevent the spread of the disease or the occurrence of additional cases the question might well be asked, What was the use of the report?

Section 10 of the law provides that whenever there occurs within the jurisdiction of a local health officer an epidemic of a notifiable disease the local health officer shall, within thirty days after the epidemic shall have subsided, make a report to the state department of health of the number of cases occurring in the epidemic, the number of cases terminating fatally, the origin of the epidemic, and the means by which the disease was spread, except that, whenever the state department of health has found it necessary to take charge of the control and suppression of an epidemic, the local health officer having jurisdiction need not make this report. This provision will give a connected account of the outbreaks of controllable diseases occurring within a state. They will also show what measures were taken locally to control the outbreaks and whether the measures were efficient.

Section 11 provides that no person shall be appointed to the position of local health officer until after his qualifications have been approved by the state department of health. If the control of disease in local jurisdictions and the protection of the public health is to be in charge of local health officers it is absolutely essential that there be some means of having their competency and eligibility passed on. Also, if the state department of health is to be made responsible in any way for health conditions within the state, it must have some control over the local health authorities. If responsibility for the control of disease within a state is not placed on the state health department, one might well ask, what is the purpose of the state health department?

Section 12 of the law provides that where there are no local health officers, and in localities where although local health officers have been appointed, adequate provision has not, in the opinion of the state department of health, been made for the proper notification, investigation, and control of the notifiable diseases, the state health department shall appoint properly qualified sanitary officers to act as local health officers and to prevent the spread of disease in and from such localities.

Section 13 makes it a misdemeanor for a physician or other person wilfully to fail to comply with the provisions of the act. It seems perfectly proper to assume that no physician who works against the community's interest and places obstacles in the way of the control of disease and public health administration by intentional failure to report to the health department the cases of notifiable diseases among his patients should be allowed by a state to practice medicine.

Section 14 of the law provides that no license to practice medicine shall be issued to any person until after the applicant shall have filed with the state licensing board a statement signed and sworn to before a notary or other officer qualified to administer oaths, that he has familiarized himself with the requirements of the law. A copy of this sworn statement is to be placed on file with the state department of health. This is simply to guarantee that every licensed practitioner will be familiar with the law with regard to the notification of disease.

The provisions of the model law slightly amended have already been adopted by the State of Kansas through regulations promulgated Dec. 13, 1913. As opportunity affords other states will undoubtedly take similar action.

ABSTRACT OF DISCUSSION

Dr. A. T. McCormack, Bowling Green, Ky.: After listening to Dr. Trask's paper, it seems easy to understand why resolutions passed in 1842 and 1855 calling for morbidity statistics had so little effect, and I fear that future essayists will report the recommendation of such bills as this as quite as ineffectual as these resolutions passed fifty years ago. Such a health organization as Dr. Trask has described would be delightful, but I venture to say that when it becomes possible for any health organization to have enough inspectors to confirm every diagnosis of a preventable disease reported to it by the practicing physicians of the jurisdiction, the millennium will already have arrived. On what meat would Dr. Trask have us feed our sanitary inspectors to make them so much more competent than the average reputable physician? Inspectors are selected from the medical profession; they are educated and trained alike, and a commission and a salary add but little to the stature or qualifications of the average man. Morbidity statistics are of tremendous importance. For them to be of real value accurate diagnoses are essential, but, instead of having an inspector to confirm the work of each physician, would it not be better for us to demand that those physicians who are unable to make accurate diagnoses should be excluded from the practice of medicine? In fact, is this not the purpose of every medical registration law in the land? The time has come when we know something definite about preventable disease. In almost every jurisdiction we are getting actual results, and instead of further centralization of our health organization with its result in dry statistics and ultrascientific and impracticable atmosphere, it has seemed to me that the family physicians, scattered all over the country, compose the great bulk of the sanitary force that are to save this country from the thralldom of preventable diseases. I do not believe for one moment that such an army of inspectors as is contemplated by Dr. Trask is necessary or that it will ever be created in this country except as we develop such a practical conception of state medicine that it will transform the family physician into the community physician and thus enroll the whole medical profession as practitioners, first, for the prevention of all the diseases possible, and, secondly, for the treatment of the non-preventable diseases. A health organization, to be successful, must have the confidence and support of the medical profession; and any statistics made by that profession, until the individuals composing it are competent to make a diagnosis, are of no real value.

Dr. Tom Williams, Washington, D. C.: Dr. Trask spoke of occupational diseases, and that is a matter which must be taken into serious consideration in the immediate future of public-health matters; because workmen's compensation acts are coming into force all over the country. Let us herein be forewarned by the measures of Germany, France, in part, and England with regard to the dangers of the workmen's compensation acts. Of course, we all admit the need of workmen's compensation acts, and the importance of protecting the workingman against want on account of accidents in his occupation; but what has actually happened in the demonstration is this, that in Germany the present upkeep of the fund of indemnity for workmen's compensation exceeds that for the German army, per annum, which is colossal.

Of those cases, however, 75 per cent. belong to a category which is very little understood by most practitioners, and which in consequence very few men know how to manage, but which can be met quite simply. I refer to neurotic disturbances, neurasthenias, neuroticisms. Most of these cases are amenable to proper treatment, and all are preventable. Although some of the patients are actually simulators, who pretend disease for the sake of indemnity, many of them are genuinely disturbed "neurotically" by the idea that they are no longer fit for work, as a consequence of some accident. These cases can be well dealt with by modern methods of psychopathology; and it is just as well that public officials dealing with the administration and the passing of acts for workmen's compensation should be aware of this fact so as to be ready to anticipate and prevent what has occurred in Germany. We have had to take hold of the scandal of indemnification for railway accidents so that now we no longer expend public money and money of corporations in large amounts for pretended injuries.

Dr. S. L. Jepson, Wheeling, W. Va.: The fact is, whatever local laws or state laws we may have to-day on the subject of reporting disease, nearly all these laws fail of enforcement; and I do not see how they can be enforced. We have in our state law a provision, for instance, for the reporting of births, with a fee of 25 cents each attached. The counties refuse to pay the 25 cents; and, therefore, the doctors refuse to report the births. They fail to report cases of infectious disease promptly, except in the cities where there is a vigorous health department, or in case of small-pox. How to induce our physicians to make these early reports is the proposition of greatest importance. Perhaps Dr. Trask can give us a little further light on that subject.

Dr. Martin Friedrich, Cleveland: There is a provision in this model health code that, within seven days after notification of a communicable disease, the local health officer must report it to the state board of health. There is also an item in which he has to state what he has done; for, as Dr. Trask added, "if nothing is done, what is the use to report diseases?" Very good; but if, after the disease or the epidemic is reported to the state board of health, the state board of health does nothing, what is the use to report to it? In towns and villages around Cleveland, where not infrequently little epidemics of scarlet fever, diphtheria, etc., occur, the local authorities frequently do little or nothing to confine the disease, and as the people come almost every day to Cleveland to sell their produce, for instance, milk, you can readily see there is danger for us. There ought to be an item in the code which would make it mandatory for the state board of health to act when the local authorities do not.

Dr. I. D. Rawlings, Chicago: Not one item is presented in this model bill that would not be feasible in Chicago. We are absolutely prepared to carry out all the provisions; and what is applicable in Chicago should be in many of the other cities of the states and even in the rural districts. We have found in Chicago that some of our physicians will not do their full duty unless compelled. We are now prosecuting some of these for failure to comply with our city ordinances requiring the reporting of contagious diseases. In diphtheria we insist on a positive diagnosis. If the physician does not take a diagnostic culture, we insist on the health officer doing so, and, if necessary, two diagnostic cultures are taken. We require placarding in Chicago for scarlet fever and measles cases; but we do not for German measles. Some of our physicians, as a subterfuge, would report a good many scarlet fever and measles cases, as German measles in order to avoid placards. To circumvent that, we wrote into our instructions the following:

"As mild cases of scarlet fever or measles are not infrequently mistaken for German measles, resulting in a localized epidemic of these diseases, and as a few physicians report the more serious eruptive contagious diseases as German measles in order to avoid placards and quarantine, the health officer will inspect all cases reported by physicians as German measles. If after examination the health officer regards the case as a contagious disease requiring placards instead of a case of German measles, he will telephone a report to the division chief. The case will be assigned promptly to a supervising health officer, who shall make one or more attempts to reach the attending physician by telephone, and if successful, ask him to see the patient with him. In any event the supervising health officer must promptly see the case. If a disease is found requiring placards, the supervising health officer must quarantine and make report in usual form." We inspect every case of unvaccinated chicken-pox to confirm the diagnosis of the attending physician. I believe this bill is absolutely feasible—in our city at least.

Dr. Charles J. Hastings, Toronto, Ontario: I quite agree with Dr. Rawlings that a well-organized department of health in any municipality ought to be able to carry out every clause of the act as presented. With regard to the report of cases I think it is frequently our fault in not keeping in close enough touch with the general practitioner. In my judgment, the most valuable asset that any department of public health has is the entire cooperation of the profession in the municipality for which the health officer is responsible. It is not uncommon for physicians in Toronto to call up the department of health, if there is any doubt with regard to a case of communicable disease, and ask to have one of our diagnosticians call and see the case. By doing so we relieve the family physician of the responsibility of having the family quarantined. The honest physician is frequently placed in an unfavorable position with his patients by an unscrupulous doctor who has attended a case next door and did not report it. I am thankful to say that we rarely have cases of this kind, but when we do we prosecute them forthwith. It is our duty to do so both to the public and to the honorable and conscientious physician who promptly reports his cases. I presume all departments of health require two negative swabs for release of diphtheria cases. I think that departments of health should require that some physician from their laboratory take the releasing swab. This also relieves the family physician from being accused by their patient for keeping them quarantined unnecessarily long and at the same time prevents the faking physician from sending in a bogus culture. I am sorry that Dr. Trask passed over the matter of venereal diseases so lightly as he did. I think there is nothing that will bring down the anathemas of future generations on the activities of departments of health more than our absolute disregard for the control of venereal diseases, a class that is probably of more national importance than all other communicable diseases combined; and yet we are in a sense practically disregarding them, afraid to touch them, on account of — what? Of the conditions under which they are contracted. Departments of health have nothing to do with the conditions under which they are contracted. If we are going to handle these diseases efficiently we must handle them as we would small-pox, diphtheria, or any other communicable disease, we must divorce them from the social aspect entirely. We have nothing to do with that; we have simply to deal with the dangers to humanity of these diseases. If we go on, with our heads buried in the sand, as we have been doing in the past, there is going to be great reflection on our deficient administration.

Dr. J. W. Trask, Washington, D. C.: I am grateful to Dr. McCormack for bringing out the phase of the subject that he did; because others, probably, look at it from the same point of view. Our country has a vast area and a varying density of population. To one whose experience has been largely in a semirural territory, in which, because of its scattered population, progress in securing satisfactory morbidity reports has naturally been delayed, the model law may seem utopian. It is entirely practical as has been shown by those who have just stated that they were already carrying out most of its provisions and that their communities were ready to carry out the remainder. The law is in operation in Kansas in the form of regulations adopted in December, 1913. I prefer not to think of morbidity reports as statistics. When we get sufficiently complete reports, their compilation will furnish us with morbidity statistics; but the main object of the notification of disease is its control in practical everyday health administration. One of the hopeful things is the great interest that is being shown, not only by the people in general, but also by the medical profession, in advancing public-health activities. Every physician who believes in greater public-health activities and in the control of disease, must necessarily abide by his state laws or regulations for the control of disease; he reports his cases and, in addition, shows an interest in the efficient control of disease in his community. Dr. Friedrich's point is fundamental. If nothing is done as a result of the report of a case of notifiable disease, why the report? That can be considered a proper question whether it concerns the primary report to the local health department or the secondary report of the local health department to the state health department. If nothing is done the report has little value. The statistical value of it is not sufficient if actual preventive measures are neglected. I purposely omitted Dr. Hastings' point—venereal diseases—not because I did not believe that they constitute one of the major public-health questions. When we get confidence in the importance of our work and really believe in its value; when we divorce from the health department the licensing of plumbers and the control of plumbing, we will occupy our time with such big, important questions as the control of venereal diseases.

General Practice as a Specialty.—General practice has, in a certain sense, become a specialty. It is true that its ranks contain a larger number than any other branch of the profession, but the large increase of the number of whole-time appointments and of specialists of every conceivable variety in the last few years and months raises a doubt as to how long this numerical preponderance will obtain. But we are at least assured that there is no danger of the extinction of the general practitioner. The intimate personal relation between the individual patient and his doctor is an essential factor which no changed conditions can completely eliminate. It is on the general practitioner that the eyes of the public and the profession are now turned, and we are confident that the trust will be completely justified.—*British Medical Journal.*

UNFAVORABLE COMPLICATIONS FOLLOWING AN INTRADURAL INJECTION OF NEOSALVARSAN

ALFRED GORDON, M.D.
PHILADELPHIA

In the treatment of syphilitic affections of the nervous system three principal methods are at our disposal, namely, intravenous injection of the drug, intradural injection of autosalvarsanized serum (Swift-Ellis), and intradural injection of neosalvarsan (Ravaut). According to the majority of competent observers the first procedure has proved to be of little avail, especially in cases of late manifestations of syphilis of the nervous system, in tabes for example. The reason lies partly in the impermeability of the meninges for the drug. The other two methods aim at a direct contact of the drug with the cerebrospinal axis. Salvarsan, in the light of our present experience, must be abandoned for this purpose by virtue of its caustic action. As this caustic feature is eliminated in neosalvarsan, the latter is the one to be applied.

After the unsuccessful attempts of Wechselman in 1912 and Marinesco in 1913, also of Levaditi and Marie in the same year, Ravaut[1] reported very satisfactory results from direct injections of neosalvarsan into the spinal canal. U. J. Wile, in this country, followed strictly the special technic devised by Ravaut, and in a recent contribution[2] describes the results of his experience with fifteen patients distributed as follows: Tabes seven; paresis five; cerebrospinal syphilis three. Out of this group seven showed marked improvement; the patient with cerebrospinal syphilis gave better results than the cases of tabes and paresis; the tabetic patients without bladder and rectum disorders have been especially benefited by the treatment. In view of this experience Wile expresses confidence in the method of intradural injections of neosalvarsan as devised by Ravaut. As a careful observer he points out two interesting features in this treatment, however, against which he cautions the therapeutist. First, he advises the use of only very small doses of the drug, and secondly, the involvement of the bladder and rectum seem to serve as a contra-indication for the treatment.

My latest experience in the treatment of syphilitic involvement of the nervous system consists chiefly in the use of autosalvarsanized serum. Subject to a later publication in detail, I may say at present that this method has given me far more satisfactory results than any other old or newer methods. Stimulated by the work of Ravaut I attempted to apply his procedure in a case of tabes. In view of Wile's favorable report[2] I feel it a duty to call attention to most undesirable consequences which may follow the use of Ravaut's technic of intradural injection of neosalvarsan.

The patient, a man of 35, presented all the typical symptoms of tabes dorsalis. At the time he came under my observation, pain in the lower extremities, ataxia, incontinence of urine and constipation were the most conspicuous manifestations. Formerly, I was told, he had the usual course of treatment with iodids and mercury. At this time the Wassermann reaction of serum and spinal fluid was positive.

I proposed at once the treatment with autosalvarsanized serum which was promptly accepted. The result from one injection was gratifying. The pain had almost disappeared, the ataxia improved, also the incontinence of urine decreased considerably. Constipation remained unaltered.

For a period of two months the patient felt very comfortable. Soon, however, the bladder disturbance returned. As the Wassermann reaction was at this time positive, the patient finally accepted the offer to have another intraspinal injection which he had repeatedly refused during the past two months. With the patient's consent I had recourse this time to a direct intradural injection of neosalvarsan instead of the autosalvarsanized serum. Accordingly I had the fluid prepared after Ravaut's technic. The solution used was 6 per cent. of neosalvarsan in distilled water. As each drop of the solution contained 3 mg. of neosalvarsan, only two drops were injected from a specially constructed and very accurately graduated syringe. The lumbar puncture was made with a needle the end of which fitted the graduated syringe. After a small quantity of spinal fluid had flowed out of the cannula and been collected in a tube for diagnostic purposes, the syringe was attached and the fluid allowed to run into it in order to mix with the drug. Then the mixed fluid was pushed gently into the canal. The procedure of mixing was repeated the second time. The patient was then placed in Trendelenburg's position.

One-half hour after the injection the patient commenced to complain of severe pain in the lower limbs, which in subsequent days became more and more pronounced. Vomiting appeared on the same day and kept up for six consecutive days. Retention of urine took the place of the former incontinence. Incontinence of feces made its appearance. All these symptoms continued without relief. On the fifth day small erythematous patches appeared on the glans penis, on the scrotum and on the sacrum. They gradually became larger and finally distinctly gangrenous.

Two weeks after the injection the patient presented the following condition: He was unable to stand or walk; he suffered agonizing pain in the lower limbs so that sleep was impossible; retention of urine and incontinence of feces were exceedingly disturbing; the gangrene of the above mentioned areas was becoming more and more profound; the temperature reached 102 and 103 F.; he vomited daily, lost his appetite and was losing weight. Gradually the condition grew more and more alarming and finally he expired.

This case seems to militate against the direct intradural use of neosalvarsan notwithstanding the favorable reports of Ravaut and Wile. It is possible that Wile's suggestion with regard to the sphincter complications as being a contra-indication for this treatment has its *raison d'être* here. Nevertheless the damage done by this procedure even in one case sufficiently deserves the attention of those who contemplate the use of this method. Perhaps further investigations on animals and a more carefully elaborated technic will enable us to view the method in a more favorable light. In a recent contribution Corbus[3] reports an experience similar to mine.

1812 Spruce Street.

---

[1] Ravaut: Ann d. méd., 1914, p. 49.

[2] Wile, Udo J.: The Technic of the Intradural Injections of Neosalvarsan in Syphilis of the Nervous System, The Journal A. M. A., July 11, 1914, p. 137.

[3] Corbus, B. C.: Cerebrospinal Examinations in "Cured" Syphilis, The Journal A. M. A., Aug. 15, 1914, p. 550.

APPLICATION OF RADIUM IN THE BLADDER FOR CARCINOMA

WITH REPORT OF TWO CASES

F. J. SCHOENENBERGER, M.D.
Adjunct Professor of Genito-Urinary Surgery, Fordham University, School of Medicine; Assistant Visiting Genito-Urinary Surgeon, City Hospital

AND

S. WILLIAM SCHAPIRA, M.D.
Adjunct Professor of Genito-Urinary Surgery, Fordham University, School of Medicine; Visiting Surgeon (Genito-Urinary), Sydenham Hospital; Assistant Genito-Urinary Surgeon, City Hospital

NEW YORK

To review at this time the various surgical conditions to which radium has been applied would be without gain, in view of the very recent development of our knowledge and use of this new element, which is being brought to our attention almost daily. We believe, however, that in reporting our cases, we are presenting for the first time a complete history of the action of radium as applied in the bladder in cases of carcinoma, accompanied as they are by cystoscopic examinations before and after application, microscopic examinations of the tumors and end-results.

After a careful review of the literature we find very few cases in which radium was applied in the bladder in cases of carcinoma. One case is reported by Cauhape in which he applied radium to the bladder for carcinoma of the prostate with cure in nine months. These applications were made with radium attached to a catheter and introduced into the bladder per urethram. Twenty-five mg. of radium were used and the applications made every three days, each application lasting two hours. Wickham and Degrais in their latest work do not mention the use of radium in the bladder. The Radium Institute of London in 1912 reported two patients treated with results not noted, and also two patients for prophylactic treatment, reported as improving. The Royal Infirmary of Edinburgh reported no bladder cases in 1912. The foregoing constitutes about all the information that we could obtain, demonstrating that in only one authenticated case, (that of Cauhape) is there any definite report as to the nature of the tumor, amount of radium used, length of application and end-result.

The two cases that have come under our observation are as follows:

Case 1.—M. J. T., aged 34, consulted us, Sept. 23, 1913. Family history shows that father probably died of carcinoma of stomach. Patient gives history of hematuria for about five years, occurring at intervals of about three months until recently, when attacks became very much more frequent. There had been no pain until shortly before the patient's visit to us. At this time the patient complained of hematuria and sharp pains in right inguinal region radiating to pelvis. Examination showed patient to be in fair physical condition. There was a left bubonocele. In right inguinal region a mass about the size of an orange could be felt. This mass was hard, immovable and extended down into the pelvis. There was edema of the right thigh. Cystoscopy showed a tumor, about the size of an English walnut, situated in the trigon, midway between its center and the opening of the left ureter in the bladder. The tumor was friable. The right ureter was obstructed, but showed urine escaping. Examination of metastatic growth, microscopically, showed the tumor to be carcinoma.

Oct. 7, 1913, a suprapubic cystotomy was done. A tube containing 15 mg. of radium was attached to the lower end of a Freyer tube and introduced into the bladder in direct contact with the tumor and allowed to remain in place for twelve hours. No discomfort was complained of by the patient at any time during the application. The same tube of radium after removal from the bladder was buried in an incision over the metastatic growth and allowed to remain in place for twelve hours. The bladder wound was completely closed on the eleventh day after the operation. Recovery from the operation was uneventful except for unaccountable attacks of pyrexia, beginning forty-eight hours after operation, lasting for three days and recurring again at the end of a week. Three such attacks occurred. Cystoscopy, December 8, two months after operation, showed that the tumor of the bladder had entirely disappeared. The mucous membrane of the bladder appeared normal. Both ureteral openings were obstructed. The metastatic tumor in the groin was about the size of an English walnut. The patient died six months after operation from general asthenia and hydronephrosis due to obstruction of ureters by metastatic growths in the pelvis.

Case 2.—B. K., aged 67, was first seen by us Jan. 4, 1914. Family history was negative. Patient complained of frequency of urination day and night for about eighteen months. During the last three months he has had pain in the region of the bladder and perineum accompanied by frequency and hematuria. He has lost about 40 pounds in the last three months. His appearance is cachectic. He was discharged from the German Hospital, after ten days' observation, as having an inoperable case. Residual urine was 12 ounces, bloody and ammoniacal. Blood-pressure from 190 to 170. Blood examination: White cells, 18,000; polynuclears, 83 per cent.; lymphocytes 11 per cent.; eosinophils, 1 per cent. Rectal examination shows large hard prostatic tumor. Cystoscopy shows large bleeding tumor slightly to left of left ureteral opening; smaller tumor near the right ureteral opening; also large eroded and bleeding tumor at site of prostate. The entire mucous membrane of the bladder appears infiltrated. Diagnosis: Carcinoma of prostate and bladder.

Patient entered hospital January 6, and a permanent catheter was introduced for drainage and irrigation preparatory to operation, suprapubic cystotomy, which was performed January 8. A tumor the size of an egg at the site of the left ureteral opening was removed. A tumor on the right side, somewhat smaller, was also removed. A V-shaped section was removed from the prostatic tumor. The prostatic growth is considered by us to have been the primary focus in this case. The section taken from the prostate also provided better drainage through the urethra. The same procedure in the use of the radium was pursued as in Case 1. The bladder was closed in three weeks. The same unaccountable pyrexia occurred as in Case 1. Patient was discharged from the hospital February 5, about four weeks after operation. At this time the patient was passing clear urine four times a day and every three hours at night at our direction to prevent distention of bladder and reopening of suprapubic wound. Patient gained 26 pounds in weight in two months. Cystoscopy, April 22, showed bladder mucosa apparently normal, the surfaces from which tumors had been removed appearing as small pale, depressed areas. All of the surfaces appeared to be covered by normal mucous membrane. Rectal examination showed prostate greatly diminished in size and of normal consistency. Residual urine, 3 ounces.

The pathologic report of Case 1 is from the laboratory of St. Francis Hospital; the pathologic report of Case 2, is from the laboratory of the City Hospital.

CONCLUSIONS

1. We may without danger, even without discomfort to the patient, place in the bladder as much as 15 mg. of radium and allow it to remain as long as twelve hours.

2. We believe that we have shown that radium has the power to remove a tumor of the bladder (carcinoma) and of the prostate within a period of two

months. It has also been demonstrated in Case 1 that radium has had a very decided effect in reducing the size of a metastatic growth associated with carcinoma of the bladder.

3. No difference seems to have been evident in the result whether or not part of the tumor was removed. In Case 1 no part of the tumor was removed, while in Case 2 a considerable portion of the tumors was excised.

4. We are of the opinion that the peculiar pyrexia associated in both cases was due to an absorption following the destructive influence of the radium on the tumors. A thorough investigation did not disclose any other cause.

We wish to take this opportunity of thanking Dr. Wolf Freudenthal for the use of the radium applied in these cases.

10 West Sixty-First Street—1847 Madison Avenue.

A CASE OF BACILLUS DYSENTERIAE SEPTICEMIA

W. T. DE SAUTELLE, M.D., KNOXVILLE, TENN.

In the literature at my disposal, instances of isolation of the *Bacillus dysenteriae* from the blood during life seem to be very few in number. Darling and Bates (*Jour. Med. Sc.*, 1912, cxliii, 36), report a fatal case from which they recovered from the circulating blood the *B. dysenteriae* of the Shiga type. All of the references at hand either make no mention of the *B. dysenteriae* entering the general circulation or state positively that it does not do so. It seemed to be of interest therefore to report the following case which was seen in consultation with Dr. C. G. Hutson of this city.

The patient was a 3-weeks-old breast-fed infant which had been in perfect health before the onset of the disease. For a day or two the baby refused to nurse, became irritable, restless and did not sleep. The child was stupid and listless, whined at times and objected to the slightest touch. Physical examination revealed no abnormalities or pathologic processes in any of the organs. The temperature was 103 and pulse 180. At this time there was no diarrhea. In consideration of the fact that the grandmother of the infant was suffering in the same house with typhoid fever, a blood-culture was made. As we were unable to enter a vein, the blood was taken from the great toe and placed in bouillon from which the *B. dysenteriae* was obtained in pure culture. Although the baby's toe was carefully cleansed and the blood dropped directly into the bouillon, we did not give much significance to the result of the culture.

The baby continued to have a fever varying from 101 to 104.5 in spite of antipyretic measures and also developed a watery diarrhea. Five days later the baby suddenly began to have severe convulsions which came on every few minutes and lasted from five to ten minutes. When seen the hands, face and feet were very cyanotic, the pulse thirty to the minute, the breathing of the Cheyne-Stokes type, the pupils dilated and inactive to light, divergent strabismus, the tendon reflexes absent (at the first examination they were normal), and the child comatose. Through a lumbar puncture needle the spinal fluid flowed out quite rapidly, but contained at least one-half blood. The fluid came as bloody at the end of the flow as at the beginning, in fact, the needle was withdrawn and reintroduced at three different places with the same result. After the removal of 3 or 4 c.c. spinal fluid the convulsions ceased for a time, the pulse and respiration improved, and the cyanosis cleared up. The child died several hours later. Post-mortem was refused.

The spinal fluid obtained was carefully placed in bouillon and an organism found which was identical in all respects with the one obtained in the blood-culture.

The organism cultivated from the blood and spinal fluid had the following characteristics: It was a Gram-negative short bacillus, only sluggishly motile, and did not produce indol in five days or coagulate or digest milk. It produced acid in litmus milk and this remained so for three days. In dextrose, levulose, lactose, mannite, galactose, maltose and dextrin bouillon this bacillus produced acid but no gas in twenty-four hours. Saccharose and inulin were unchanged. At the end of three days the mediums remained unchanged.

The organism corresponding to these reactions is the bacillus "Rosen" (from dysentery) and we therefore concluded that this was a case of *Bacillus dysenteriae* septicemia. The finding of the same organism in the bloody cerebrospinal fluid and the blood taken from the child's toe convinced us that the organism had been present in the general circulation from the onset of the illness. Death was no doubt due to the cerebral hemorrhage rather than to the toxemia. Nevertheless this case with the fatal case previously mentioned would lead one to think that the advent of the *B. dysenteriae* into the general circulation means a fatal outcome of such cases. More reports of *Bacillus dysenteriae* septicemia are necessary, to be sure, before drawing such a conclusion.

The source of infection could not be ascertained. The child was breast fed and the parents denied having given it any other food. It may have been given unboiled water, but this they also denied. The sick grandmother handled the infant and even kissed it on the mouth several times. The diagnosis in her case, however, was unquestionably typhoid fever, as a blood-culture done by Dr. A. L. Smith in our laboratory revealed an organism identical in all its reactions to the *Bacillus typhosus*.

417 Holston Bank Building.

HYGROMA OF THE GROIN

PERCY WILLARD ROBERTS, M.D., NEW YORK

The following case of hygroma in the groin is of interest on account of its apparent rarity and also because the method by which healing was finally induced is not commonly in vogue.

Surgical literature contains very little concerning hygroma in the groin. In a carefully prepared paper by Dowd in the *Annals of Surgery* for June, 1913, in which are reported several of his own cases, he goes over the literature of hygroma and refers to the fact that it seldom appears in the groin. A rather painstaking search fails to reveal any reported instances of cystic formations in this region, though, doubtless, cases have been noted, for the abundant supply of lymphatic tissue here would indicate a fertile field for their development.

The patient was a boy of 16 who was sent me with a diagnosis of psoas abscess, to which clinical appearances pointed. There was present at the upper and anterior aspect of the right thigh a large tumor extending from the groin half way to the knee, with the characteristic feel of a tense abscess. On the outer side of the thigh there was a discharging sinus through which a probe could be passed to a point over the head of the femur. Examinations of the hip-joint and spine were, however, negative, as were also roentgenograms of these parts.

Nevertheless, the clinical picture was one of cold abscess. The swelling had enlarged rapidly, having developed in three months without pain or temperature, and there was no history of injury or infection.

The patient was taken to the Post-Graduate Hospital, and incision of the tumor resulted in the evacuation of about a quart of a clear, straw-colored fluid which contained no pathogenic organisms. Exploration revealed a multilocular cavity extending to the ramus of the ischium without definite source of origin, the bone not being involved. There was no connection with the sinus on the outer side of the thigh. The cavity was lined with an extremely delicate membrane, but there was apparently no limiting membrane of a fibrous nature, the resistance of the muscles and fascia acting as a retaining wall.

The cavity was thoroughly scraped and allowed to drain. A few days later a constriction half way toward the ischium closed and the upper end of the cyst rapidly refilled, necessitating a second opening, which was followed by scraping and the application of iodin. The sinus on the outer side of the thigh, which was probably the remains of a ruptured cyst, was also thoroughly scraped. Both cavities were treated with iodin, phenol (carbolic acid), bismuth and argyrol over a period of fourteen weeks without any attempt at healing from the bottom, although both contracted in circumference. There was still a free secretion of clear fluid.

In view of the effect of the Roentgen ray on old tuberculous sinuses, many of which will heal under its influence, the patient was given a four-minute exposure with a hard tube. At the end of ten days both sinuses had begun to fill in at the bottom. Three other similar exposures at intervals of ten days completed the cure.

The laboratory report on the scrapings removed from the cavity was not conclusive, owing, no doubt, to the fact that the specimen was taken at the second operation and did not include enough of the lining membrane to determine its exact nature. It would seem, however, that from the delicacy of the lining membrane, the multilocular character of the cyst and the rapidity and force of its growth, the case should properly be classified under the head of hygroma.

40 East Forty-First Street.

Therapeutics

PREVENTION IS GREATER THAN CURE

(*Continued from page 1761*)

IX

EUGENICS

This very large social, economic, medical, religious and legal subject should receive a passing thought in this series on preventive medicine.

Briefly, heredity and environment are the two factors that are most prominent in the production of physical and mental health. Environment may improve or mar heredity, but cannot change it. Heredity is therefore the most important factor in raising and developing an ideal race. Scientific selection in breeding animals and plants has proved its value beyond all possible refutation. The importance of good environment for the perpetuation of physical and mental health is so well understood that it requires no discussion. But environment will not eliminate a hereditary tendency to disease or to mental or physical insufficiency. Neither will environment develop perfect mental and physical health when there is an inherited deficiency, although environment can markedly improve deficiency caused by injury or acquired by disease.

The long gestation, still longer nursing, and yet longer helpless period of the human emoryo and human infant demand the long nourishing care of the mother by the father and by the community. This means that *for at least two years* the father must provide food, protection and comfort, if not luxury, for the mother and child as well as for himself. If he fails in this duty, some other person, some charity, or the community must assume the duty. This being the fact, worthless, incapable and mentally or physically diseased fathers are a tax on the community.

All kinds of beautiful and necessary charities are succeeding in their aim to raise to adult life defective children, as well as to save the well and strong. A large number of these mentally, physically, and often through heredity, morally defective persons assert the right to marry, and do so, and another crop of defective children is the result. Our orphan asylums, hospitals, sanatoriums, homes, insane asylums, jails and prisons are being overfilled in consequence of the foregoing conditions. What are we going to do about it?

The *environment of* prospective fathers and mothers and their future children is being constantly improved by the public health advances now being made in all communities, but as has been stated, this will not prevent the ravages of inherited disease (syphilis, epilepsy, insanity, imbecility, physical weakness) or of the inherited tendency to disease (tuberculosis, cancer, gout, diabetes, alcoholism, etc.), any more than environment can produce twins, beauty, geniuses or permanent health. In fact, improved environment is doing more for the defectives in all lines than for those of good heredity, who would survive a less improved environment.

The question for discussion, then, in this one on eugenics is, who shall marry, and who shall have children? It seems doubtful whether the law or the state can, in the present status of the human age and of civilization, enforce scientific selection or compel complete physical and mental examination of a man and woman before they may be allowed to marry. Public health and welfare education, medical teaching and instruction, and the higher education emanating from the church may, in a few decades, make this problem one that is readily decided by the families of the contracting parties, or even by the young man and young woman most deeply interested. On the other hand, it is possible that the age is ripe for an insistence that known defectives and known diseased individuals be allowed to marry only when the other member of the contracting parties is made cognizant of the fact, and also that means be taken to prevent offspring from such alliances. Such defectives often breed readily and lavishly, and their progeny are often no comfort to themselves, and are more than likely to become a future, *if not an immediate, tax on the community* and state. This brings up the question of either prohibiting marriages of defectives (known to be such through public charities or public institutions and hence not ascertained by the compulsory examination of private individuals), or of legal sterilization of such defectives.

THE SCHOOL QUESTION

The following are a few suggestions of important subjects that medical men should impress privately on their families and publicly in their communities:

1. A child should be healthy before it goes to school (adenoids, tonsils, teeth, anemia, debility, etc.).
2. The kindergarten methods of teaching should be investigated, as some parts of this teaching are objectionable, and especially should the eyes of these young children not be overtaxed.
3. The best age for a child to attend a kindergarten is from 4 to 6 years; but the ordinary child at 6 years of age is too young to enter real school work. It would be ideal, from a physical point of view, if the child could then have one year, or in some instances two, in a "play school," combining physical exercise with moral and mental development. Then the child would be well fitted to attend real school.
4. The location of school buildings is important, and the architecture and equipment of such buildings are very important.
5. There should be well-equipped playgrounds in all cities.

6. The books, pencils and other school paraphernalia should be antiseptically cleaned, and clean aprons could well be provided for dirty kindergarten children.

7. Teachers should be mentally efficient, and should be physically examined at regular intervals as to their health. A physically and mentally "fit" teacher is essential for good school work.

8. Open air or open-window schools, and luncheons for underfed children should be inaugurated.

9. Kissing and the exchange of pencils and penholders among children should be discouraged.

10. There should be a trained nurse attached to each large school.

11. There must be medical inspection, if not medical examinations.

12. There should be segregation for feeble-minded, as well as for otherwise defective children. Anemic children, and those with a tuberculous tendency should be in open air rooms.

13. Night schools should have medical and sanitary supervision, especially if such schools are held in the rooms occupied by the children in the daytime.

14. The crime of child labor should be prevented.

SCHOOLHOUSES

The location of the city school cannot always be carefully selected; the school must be placed where it is most needed. The country school, however, should be located high and dry, and with a careful consideration of its sanitation, that is, its water-supply and the proper management of its sewerage system.

There is no excuse for having a country school more than two stories, and if possible, a city school should be but two stories high. The frequent going up and down of long flights of stairs is especially bad for growing girls. The light should be sufficient, and should not shine directly into the pupils' eyes, but should best enter the room from the left and the rear. The blackboards should be so placed as to receive the best light. The temperature should be from 65 to 68 F. Moisture should be sufficient, but not excessive.

The desks and chairs should be very carefully selected, and one or both should be adjustable as to height. Even with such adjustment the children should not be kept too long sitting, but should have walking, or simple calisthenic exercises to stimulate the circulation and ease the muscles.

The floors should be hard finished, so that they may be readily cleaned with vacuum cleaners, and the furniture should be such that it can be readily cleansed with antiseptics, when such are needed. In fact, daily washing of the floors with some antiseptic may be advisable. The toilet and washing arrangements should be of the best, and sanitary drinking facilities should be installed in every school.

Some one or more rooms should be arranged as open-window rooms. Every large school should have a private examining room for the use of the examining physician and the trained nurse. Every school, if possible, should have a properly equipped playground.

HOURS IN SCHOOL

The kindergarten is undoubtedly good for children whose mothers cannot care for them and who otherwise would be on the street, but the kindergarten teaching is often bad for children who are already pushed mentally in their own homes. We are not sufficiently careful to prevent mental fatigue in schoolchildren, and the number of hours generally devoted to school work is much too great. R. O. Clock[1] has studied this subject, and makes suggestions which should be carefully considered. He believes that from 7 to 8 years of age two hours of actual school mental work is sufficient; from 8 to 9, two and one-half hours; from 9 to 10, three hours; from 10 to 12, four hours; from 12 to 14, five hours. The longer periods should, of course, be broken up into two sessions. At all ages the sessions should be interrupted with from fifteen to thirty minutes' recess for fresh air and relaxation. It has been ascertained that a child at 6 has brain fatigue and his attention tires after fifteen minutes of concentration; from 7 to 10, after twenty minutes of concentration; from 10 to 12, after twenty-five minutes of severe work; and from 12 to 16 after thirty minutes. The best brain work has been found to be accomplished in the morning, and fatigue is more rapid in the afternoon, and more rapid when there are bad air and dark or overheated rooms. The brain activity is increased after gentle muscle exercise; hence the advantages of calisthenics and recesses.

It is little less than a crime to spur on brain work without proper exercise and outdoor play, and some pupils, little more than children, are stimulated to mental overactivity and to attain high standing without regard to whether or not they have time for fresh air. Before the age of 12 years a child should not be required to study at home. The crime of pushing children forward, rushing their advance from one grade to another, should cease. The child should advance by natural ability and natural progress. Cramming and pushing to get a certain amount into his brain at a certain date, and then to get him out of his grade into another to make room for one who is being pushed and crammed in the grade below should be abolished.

OUTDOOR EXERCISE

Playgrounds, and regular hours for their use, and the occasional presence and direction of games or exercises by a physical instructor, all work for the great good of the future sturdy citizen.

Weak children should not be allowed to play or exercise to exhaustion. Also, even with strong children, the necessity for bodily repair by rest periods should be urged. The story of nutrition, metabolism and elimination of waste products, and the repair during rest should be understood by all teachers. The bedtime hour for children of different ages should be taught by the teachers.

Competitive physical, and even mental tests or stunts are bad, very bad for some. It is always injurious for growing boys and girls to sustain long physical strain, and it should not be allowed by school boards in schoolchildren. This does not mean that under proper jurisdiction there should not be baseball games for boys and basketball games for girls, etc., but competitive stunts, as just stated, should not be allowed. Secret societies which cause jealousies and cliques and ill feelings should not be allowed, although certain open, non-secret societies whose membership is reached by good work and whose object is to accomplish good work are often excellent training.

(To be continued)

---

[1] Clock, R. O.: Dietet. and Hyg. Gaz., September, 1912.

THE JOURNAL OF THE
AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street . . . Chicago, Ill.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

Contributors, subscribers and readers will find important information on the second advertising page following the reading-matter.

SATURDAY, NOVEMBER 21, 1914

WHAT RENDERS A DIET INADEQUATE?

In the nutrition investigations of the present period there is an unmistakable tendency toward emphasizing the qualitative aspects of the dietary quite as prominently as the purely quantitative features of the food intake. The appreciation of the importance of an adequate supply of food units has become wide-spread in the ranks of the layman as well as the specialist. The need of energy for the working of the human mechanism has become quite as self-evident as is the necessity of fuel in the omnipresent automobile. The principle of the conservation of energy and matter is recognized on all sides. The less familiar conception of the specific rôle of certain food substances is only beginning to make its influence felt. The story of the vitamins and the part they may play in the pathogenesis of such diseases as beriberi and scurvy is preparing the way for a wide-spread interest in what has hitherto been relegated to a minor part in nutrition.

Writers on animal nutrition have long employed the expression "balanced ration" in connection with feeding practices in modern agriculture. By this they refer to a mixture of the nutrients in which the proteins, fats, carbohydrates and inorganic ingredients are present in certain relative proportions. The requirement of an irreducible minimum of protein and of inorganic salts has become obvious; but how inappropriate even the so-called balanced ration may be under some circumstances was plainly demonstrated in the Wisconsin experiments with cattle[1] in which failure followed the attempt to supply the nutrients from a single plant source. It is evident that there are details of composition with respect to the food-supply which scarcely suggested themselves in the cruder surveys of the nutrition situation, but which nevertheless spell success or failure in any prolonged dietary regimen.

The reason that the importance of hitherto unsuspected features was not recognized earlier may lie in the fact that most individuals are accustomed to a fairly wide range of food products—a condition under which deficiencies in minor though important, constituents are less likely to arise. The extremes in nutrition are therefore most likely to appear under experimental conditions; and in this field of knowledge, as in so many others, the laboratory animals have furnished new and useful points of view from which to approach the problems of the human dietary. In illustration we may refer to the newest studies from Professor Hofmeister's laboratory in Strassburg published just prior to the outbreak of European hostilities which threaten to put an end to so much of the best in the medical sciences of to-day. Oseki[2] had shown that it was possible to keep mice in good nutritive condition for considerable periods of time on a diet of coarse rye bread, the *Kommissbrot* of the Germans. This product may accordingly be designated as a food both quantitatively and qualitatively adequate for the species investigated. It appears, however, according to the newest experiments of Tachau,[3] that additions of apparently innocuous substances, including sugar, fats and certain salts, may suffice to render these appropriate diets no longer suitable for adequate nutrition.

The conversion of a diet which seems to meet the requirements of an animal satisfactorily, into one obviously inappropriate, by the mere superposition of products that commonly enter into the dietary, would scarcely have been suspected a few years ago. In the mice under consideration the disproportions in the food, produced by large additions of sugar or fat, resulted in gradual decline of body-weight ending in death. To explain this, various hypotheses suggest themselves. Anorexia may have resulted from the "one-sided" diets, leading to gradual inanition from insufficient food intake. The digestibility of the ration may have become impaired by the unusual preponderance of individual foodstuffs. The upset in the usual interrelations of protein, fat and carbohydrate may have made itself felt in some feature of intermediary metabolism. After all, it matters little whether any or all of these explanations apply in this case. The lesson to students of human nutrition lies in the warning that much remains to be learned before we can pronounce the final word with respect to what constitutes a balanced ration.

In Tachau's experiments some of the animals received additions of undue amounts of certain salts—sodium chlorid, sodium phosphate, sodium sulphate, sodium lactate—to the otherwise suitable ration. In these cases, in contrast to what happened when the organic admixtures were added, upsets in the osmotic phenomena of the organism frequently made their appearance, leading to an abnormal distribution of water and the exhibition of edema. The production of this symptom by the continued administration of salt in large quantities belongs among experimental novelties. An added interest is attached thereto because a similar phenomenon has been described in infants after ingestion of excessive quantities of salt.[4] In the adult "latent" accumulations of fluid do not become evident so readily in the same way.

---

[1] Unappreciated Factors in Diet, editorial, The Journal A. M. A., March 2, 1912, p. 637.

[2] Oseki, S.: Untersuchungen über qualitativ unzureichende Ernährung, Biochem. Ztschr., 1914, lxv, 158.

[3] Tachau, P.: Versuche über einseitige Ernährung, I, Biochem. Ztschr., 1914, lxv, 253.

THE SIGNIFICANCE OF GLYCURONIC ACID

How sugar is burned up, or metabolized in the organism is a question that interests every one who has to deal with the nutritive functions of the body either in health or disease. The discovery of glycuronic acid, $COOH.(CHOH)_4.CHO$ — a compound closely related to glucose and other carbohydrates and derived therefrom by slight oxidation—as an occasional constituent of the excretion early gave occasion for the speculation that it is derived from carbohydrate in the body. A further step in the way of hypothesis has been to look upon glycuronic acid as an intermediate product of sugar destruction—a stage in the physiologic conversion of the carbohydrate into its final end products, water and carbon dioxid. The fact that when certain toxic products, like menthol, camphor, and many other substances, particularly alcohol derivatives, are introduced into the organism they are eliminated as conjugated glycuronates in no way controverts the hypothesis; for it is easily conceivable that the noxious substances of an alcoholic type combine with glycuronic acid as it is formed, and by uniting with the latter in transit, as it were, through the process of metabolism, they become detoxicated prior to their elimination.

To postulate that any substance represents an intermediate step in the disintegration of a foodstuff in metabolism implies that it is itself easily destroyed in the organism and, under ordinary circumstances does not make its appearance anywhere in the body in any quantity. The failure to meet these criteria ought, we believe, to take a compound out of the category of an intermediate product. These statements apply, of course, only under conditions of health and reasonable feeding. Sugar is a normal product easily consumed by the body; yet there are conditions of disease, like diabetes, in which it fails to undergo the usual conversion into end products.

Glycuronic acid has already been investigated with a view to securing answers to the questions raised. Mayer[1] has reported an apparently ready destruction of this substance when it was introduced into the organism, and his studies have formed the basis for the textbook statements that glycuronic acid is ordinarily readily burned up in the body. The experiments of Mayer are now directly contradicted by the newest researches of Biberfeld[2] at the pharmacologic institute of the University of Breslau. In these, glycuronic acid was recovered almost quantitatively unchanged when it was introduced parenterally into animals. The suggestion thus afforded of the improbability that glycuronic acid is an intermediate stage in the oxidation of the carbohydrates is strengthened by the comparable physiologic indestructibility of other acid oxidation products of the sugars. Neither gluconic acid, $COOH.(CHOH)_4.CH_2.OH$, nor saccharic or mucic acids $COOH.(CHOH)_4.COOH$ are readily destroyed in the body. These facts point to glycoronic acid as an abnormal rather than normal stage in metabolism.

ABSORPTION OF THE CEREBROSPINAL FLUID

Of the problems connected with the cerebrospinal fluid, some of which have been discussed recently in these columns,[1] that of the paths of absorption of the fluid has been the subject of much interest. Key and Retzius, Quincke and others showed the continuity of the cranial and spinal subarachnoid spaces, in which the fluid is found, and held, with most later observers, that absorption takes place by way of the venous sinuses through the pacchionian granulations and the lymphatic system.

The methods of study have comprised the microscopic examination of the meninges, which has revealed nothing conclusive, and the injection of suspensions of granules, of viscous fluids, of emulsions or of true solutions. The injection of anything but true solutions is open to the serious objection that the paths sought are those of the absorption of an easily flowing fluid and not solids or clogging fluids, which are caught in the meshes of the arachnoid. Weed[2] gives the results of the injection of a true solution of potassium ferrocyanid and iron ammonium citrate into the subarachnoid spaces during life, with subsequent precipitation of Prussian blue wherever the fluid penetrates in the head and neck by fixation of the tissues *in situ* by a 1 per cent. solution of hydrochloric acid in liquor formaldehydi.

By this method, Weed concludes that the chief pathway of absorption is the venous sinuses. After injection of the fluid into the spinal subarachnoid spaces, he finds the path taken by the fluid to be throughout the cranial subarachnoid spaces, and thence, by way of "arachnoidal villi," into the great sinuses. The sinus into which this occurs chiefly is the superior longitudinal, but practically all the others take some part in the drainage.

That the absorption is chiefly cranial Weed believes is shown by the much more rapid absorption and excretion in the urine of phenolsulphonephthalein from the cranial spaces than from the spinal, after ligation of the cervical cord and meninges. He finds that the cerebral, as distinguished from the pachymeningeal, vessels play no part in the drainage of the fluid under normal conditions of pressure, and that the subdural spaces are excluded from participation in this escape, since no connection exists between them and the subarachnoid spaces.

---

[4] Freund, W.: Jahrb. f. Kinderheik., 1914, lix, 421. Meyer, L. F.: Ibid., 1910, lxxi, 1. Schloss, E.: Ibid., 1910, lxxi, 296. Krasnogorski, N.: Ibid., 1910, lxxii, 373. Köppe: Ibid, 1911, lxxiii, 9.

[1] Mayer, P.: Ztschr. f. klin. Med., xlvii, 68.

[2] Biberfeld, J.: Zum Verhalten der Glukuronsäure im Organismus, Biochem. Ztschr., 1914, lxv, 479.

[1] The Production of Cerebrospinal Fluid, editorial, THE JOURNAL A. M. A., March 28, 1914, p. 1018. New Facts About the Cerebrospinal Fluid, Current Comment, Sept. 19, 1914, p. 1037. The cerebrospinal Fluid, editorial, Nov. 14, 1914, p. 1764.

[2] Weed· Jour. Med. Research. 1914. xxxi. 51.

The path of escape from the subarachnoid spaces into the sinus he finds to be the "arachnoidal villi." These are projections of arachnoidea into the wall of the sinus, usually about veins entering the sinus, and most numerous in those areas where the great cerebral vessels enter. The arachnoidal tissue, as it passes backward and inward in the wall, becomes myxomatous, and is capped at its end, where it lies in close apposition to the endothelium of the sinus, by one or many layers of mesothelial cells, through which and the endothelium the fluid enters the lumen. Usually these villi are confined to the wall of the sinus, but in adults they may be seen projecting into the lumen, and the myxomatous portion forms the groundwork of the pacchionian granulations. Weed states further that projections of arachnoidal mesothelial cells occur in all portions of the dura, especially about the sagittal and cavernous sinuses, serving as intradural channels for cerebrospinal fluid, which explains the weeping of fluid from the exposed dura after removal of portions of the calvarium during life. He believes that the passage of fluid through the villi is a filtration, rather than a process of osmosis or secretion, since the Prussian blue granules are found in the cells and lumen of the sinus even with high concentrations of injection fluids, and retrograde passage of fluids occurs through the villi on obstruction of the return venous flow from the head.

The lymphatic system appears to play an accessory part in the absorption of cerebrospinal fluid, since after injection into the spinal subarachnoid spaces, Prussian blue is found in the cervical lymph-channels and glands and in the perineural lymph-spaces of the cranial and spinal nerves. About the olfactory nerves, in the meshes of the connective tissue reticulum and in the lymphatic channels of the nasal mucous membranes, large amounts of Prussian blue are found. Weed cites several cases in which fluid containing potassium ferrocyanid ran out of the nose during injection. This drainage seems to occur in a like manner, but to a lesser extent, along the other cranial and spinal nerves.

Briefly, then, we may conclude from the results of Weed's valuable work that the escape of cerebrospinal fluid is chiefly by filtration through arachnoidal villi from the subarachnoid spaces into the venous sinuses, with an accessory path from the perineural spaces of cranial and spinal nerves through the tissue spaces about the nerve to the lymphatic vessels.

SOME FEATURES OF BONE GROWTH

Although calcium is admittedly an indispensable constituent of the diet, the need of this element is far more acute during the period of growth than in adult life when the bony structures, rich in lime and other tissues, have been fully developed. The period of gestation — in reality, likewise a period of growth in a special sense — is excepted, and also the time of lactation, when milk comparatively rich in calcium is being secreted in abundance.

A deficiency in the intake of calcium during the period of adolescence is more than likely to entail disturbances in the development of the osseous tissues. This is, of course, a fact too familiar to admit of discussion here. Nevertheless, the actual character of the bone defects which result from such deficiency is by no means so certain as the supposed familiarity of the subject would lead one to conjecture. Perhaps the morphologic pathologists are confident of their ability to recognize a bone rendered defective from the lack of the essential lime salts. The pathologic chemist is far from convinced as to the indications of abnormal composition under these circumstances. Has not the problem of rachitis and of osteoporosis remained a topic of controversy until the present day?

The lack of satisfying knowledge with respect to the effects of a shortage of calcium in the diet is attributable in the case of the human subject in largest measure to the inability of the student to examine material from suitable cases. Comparatively few investigators have contributed tissue analyses bearing on this topic. Furthermore, the variations in the food intake of the growing infant or child are rarely extreme with respect to their deviation from the normal, so that the effects are never very pronounced and are likely to be concealed when they are contrasted with the broad range of a "general average." For these reasons our best information has come and is further likely to come from carefully planned experiments on animals during their period of growth.

Very recent studies by Weiser[1] in Professor Tangl's institute at Budapest are of peculiar interest, because they involve experiments on growth with diets differing solely in their content of calcium. The ration poor in calcium contained 0.055 per cent. of this element, in comparison with 0.448 per cent. in the comparable dietary. The prolonged lime-poor feeding brings about very apparent changes in growth, which early manifest themselves in undersize or underweight by contrast with control animals. If the calcium deficiency is continued the appetite fails and then nutritive decline may actually ensue. There are, of course, extreme conditions for actual practice, yet they are the outcome of diet deficiencies that are not apparent to the eye and sometimes call for very expert knowledge.

---

[1] Weiser, S.: Zur Kenntnis des Einflusses kalkarmer Nahrung auf die Zusammensetzung der wachsenden Knochen, Biochem. Ztschr., 1914, lxvi, 95.

How many mothers, or even physicians, realize that corn and meat, for example, are very low in calcium? Are they informed as to the distribution of calcium in common foods?

The bones of the individuals deprived of sufficient calcium exhibit a physical make-up that may readily reveal itself in a cursory examination. They are likely to be thin, pliable, deformed and fragile. The skeleton is not necessarily retarded in its external growth, but the bones supplant part of the lack of mineral constituents by an added richness in water.

One of the novelties revealed in Weiser's research is the unexpected presence of not inconsiderable quantities of alkalies—sodium and potassium—in the lime-poor bones. Magnesium, which has been believed by some to replace the calcium when the latter is not available, is after all not correspondingly conspicuous. The changes in the distribution of the inorganic components of the bone are not alike in all parts of the skeleton. The deviations are least conspicuous in the skull and most prominent in the ribs and spinal vertebrae. Many of these facts here elaborated from recent researches have been demonstrated in the past. They will bear repetition so long as the rôle of specific components of the diet is not appreciated more deeply than it appears to be at present in medical circles.

AS TO SANATOGEN

For several years it has been known by physiologists that all proteins taken into the stomach are disintegrated into their fundamental components, the amino-acids, and that they are not absorbed at all as proteins, except in most minute amounts under exceptional conditions. Therefore, no matter what protein is taken as food, the material obtained from this protein by the body is a group of amino-acids, always pretty much the same except in relative proportions, whatever the food. A few proteins lack certain essential amino-acids, but any ordinary diet supplies enough, and more than enough, of each and every amino-acid. Furthermore, since the proteins are completely disintegrated before absorption, it follows that any adventitious chemical substance that is bound to a protein taken in the food does not enter the blood and circulate in the body in the same protein compound.

All the facts stated above are elementary, and should be known by any and every physician who pretends to keep even approximately abreast of the science of medicine. If there are any who do not know these fundamentals, and from certain unwelcome evidence we fear there are, they must be resigned to being told just where they stand. Certainly they have no good excuse for their lack of information, for the physiologists and biochemists have informed them of modern advances in innumerable ways. For ten years and more these facts have been discussed and demonstrated in societies and in medical publications. And yet — there is Sanatogen, prescribed by Geheimrats, Hofrats and also by doctors, and testimonialed as abundantly by men with medical degrees as Duffy's whisky is by centenarians. One can merely throw up his hands. If, as the exploiters of Sanatogen declare, the product "has been endorsed by von Noorden, Ewald, Dührssen, Eulenburg, Neisser, Binswanger, Leyden, Krafft-Ebing, Tillmanns, Tunnicliffe and thousands of other earnest, reputable physicians," we can only say that their earnestness has not been in the direction of grasping fundamental advances in medical sciences, however great the reputation they have gained may be.

In this issue[1] we print another report of exact experimental observation which shows, as was obvious beforehand, that Sanatogen has the properties of its constituents, namely, casein and glycerophosphates. Nothing more nor nothing less could be the case. Bottling dried cottage cheese plus some glycerophosphates, and raising the price many times, may increase its psychic effect, but it will not alter its physiologic action. These facts we have presented often enough, but the amount of paid advertising the proprietors of this compound find it profitable to carry in the United States makes us feel obliged to give them this bit free. That laymen may be persuaded to purchase Sanatogen in the belief that it possesses some occult powers not to be found in its constituents is not surprising. By blatant and persistent advertising, the public can be fooled into buying any product — however valueless — for which medicinal claims are made. But that physicians should prove equally gullible is a sorry commentary on the scientific attainments of the followers of a learned profession.

NEW EXPERIENCES WITH INTRAVENOUS NUTRITION

Not long ago we called attention to the successful experiments of Henriques and Andersen of the physiologic institute at the University of Copenhagen in the field of intravenous nutrition.[2] They succeeded in keeping animals alive for very considerable periods of time by the device of a continuous intravenous injection of nutrients, either by way of the jugular vein or through a splenic vein. By such parenteral "feeding" of completely digested proteins, together with suitable non-nitrogenous food materials, it was possible to secure retention of nitrogen, that is, positive or favorable nitrogen balances in the organism. Inasmuch as the nitrogen in such nutrient solutions was supplied essentially in the form of amino acids, not only is their significance for the nutritive functions thereby conspicuously demonstrated, but also the probability of a pro-from the cranial spaces than from the spinal, after ligation of the cervical cord and meninges. He finds that the cerebral, as distinguished from the pachymeningeal, vessels play no part in the drainage of the fluid under normal conditions of pressure, and that the subdural spaces are excluded from participation in this escape, since no connection exists between them and the subarachnoid spaces.

---

[1] Street, J. P.: The Feeding Value of Sanatogen Compared with Commercial Casein with Respect to Maintenance and Growth, The Journal A. M. A., this issue, p. 1831.

[2] See Henriques, V., and Andersen, A. C.: Ztschr. f. physiol. Chem., 1913, lxxxviii, 357; Intravenous Nutrition, editorial, The Journal A. M. A., Jan. 31, 1914, p. 385.

The path of escape from the subarachnoid spaces into the sinus he finds to be the "arachnoidal villi." These are projections of arachnoidea into the wall of the sinus, usually about veins entering the sinus, and most numerous in those areas where the great cerebral vessels enter. The arachnoidal tissue, as it passes backward and inward in the wall, becomes myxomatous, and is capped at its end, where it lies in close apposition to the endothelium of the sinus, by one or many layers of mesothelial cells, through which and the endothelium the fluid enters the lumen. Usually these villi are confined to the wall of the sinus, but in adults they may be seen projecting into the lumen, and the myxomatous portion forms the groundwork of the pacchionian granulations. Weed states further that projections of arachnoidal mesothelial cells occur in all portions of the dura, especially about the sagittal and cavernous sinuses, serving as intradural channels for cerebrospinal fluid, which explains the weeping of fluid from the exposed dura after removal of portions of the calvarium during life. He believes that the passage of fluid through the villi is a filtration, rather than a process of osmosis or secretion, since the Prussian blue granules are found in the cells and lumen of the sinus even with high concentrations of injection fluids, and retrograde passage of fluids occurs through the villi on obstruction of the return venous flow from the head.

The lymphatic system appears to play an accessory part in the absorption of cerebrospinal fluid, since after injection into the spinal subarachnoid spaces, Prussian blue is found in the cervical lymph-channels and glands and in the perineural lymph-spaces of the cranial and spinal nerves. About the olfactory nerves, in the meshes of the connective tissue reticulum and in the lymphatic channels of the nasal mucous membranes, large amounts of Prussian blue are found. Weed cites several cases in which fluid containing potassium ferrocyanid ran out of the nose during injection. This drainage seems to occur in a like manner, but to a lesser extent, along the other cranial and spinal nerves.

Briefly, then, we may conclude from the results of Weed's valuable work that the escape of cerebrospinal fluid is chiefly by filtration through arachnoidal villi from the subarachnoid spaces into the venous sinuses, with an accessory path from the perineural spaces of cranial and spinal nerves through the tissue spaces about the nerve to the lymphatic vessels.

SOME FEATURES OF BONE GROWTH

Although calcium is admittedly an indispensable constituent of the diet, the need of this element is far more acute during the period of growth than in adult life when the bony structures, rich in lime and other tissues, have been fully developed. The period of gestation — in reality, likewise a period of growth in a special sense — is excepted, and also the time of lactation, when milk comparatively rich in calcium is being secreted in abundance.

A deficiency in the intake of calcium during the period of adolescence is more than likely to entail disturbances in the development of the osseous tissues. This is, of course, a fact too familiar to admit of discussion here. Nevertheless, the actual character of the bone defects which result from such deficiency is by no means so certain as the supposed familiarity of the subject would lead one to conjecture. Perhaps the morphologic pathologists are confident of their ability to recognize a bone rendered defective from the lack of the essential lime salts. The pathologic chemist is far from convinced as to the indications of abnormal composition under these circumstances. Has not the problem of rachitis and of osteoporosis remained a topic of controversy until the present day?

The lack of satisfying knowledge with respect to the effects of a shortage of calcium in the diet is attributable in the case of the human subject in largest measure to the inability of the student to examine material from suitable cases. Comparatively few investigators have contributed tissue analyses bearing on this topic. Furthermore, the variations in the food intake of the growing infant or child are rarely extreme with respect to their deviation from the normal, so that the effects are never very pronounced and are likely to be concealed when they are contrasted with the broad range of a "general average." For these reasons our best information has come and is further likely to come from carefully planned experiments on animals during their period of growth.

Very recent studies by Weiser[1] in Professor Tangl's institute at Budapest are of peculiar interest, because they involve experiments on growth with diets differing solely in their content of calcium. The ration poor in calcium contained 0.055 per cent. of this element, in comparison with 0.448 per cent. in the comparable dietary. The prolonged lime-poor feeding brings about very apparent changes in growth, which early manifest themselves in undersize or underweight by contrast with control animals. If the calcium deficiency is continued the appetite fails and then nutritive decline may actually ensue. There are, of course, extreme conditions for actual practice, yet they are the outcome of diet deficiencies that are not apparent to the eye and sometimes call for very expert knowledge.

---

[1] Weiser, S.: Zur Kenntnis des Einflusses kalkarmer Nahrung auf die Zusammensetzung der wachsenden Knochen, Biochem. Ztschr., 1914, lxvi, 95.

may accordingly be interpreted in the form of emotional states. Inasmuch as the sympathetic nervous system is closely involved in the functioning of the internal organs and the blood-supply of different parts of the body, the logic of the situation leads one to inquire into a possible interrelation between all of the factors here discussed, particularly the association of dispositional changes following castration with alterations in the sympathetic system. Dr. Wheelon[1] of the Northwestern University Medical School in Chicago has made a careful comparison of certain vascular responses in dogs before and after removal of the testes, in order to secure information as to the effects of such operations on the general functions of the body. His work indicates that normal blood-pressure is only slightly changed as a result of gonadectomy. The irritability of the myoneural junction of the arterial walls, as determined by comparative responses to the same dosage of epinephrin, was constant, within the limits of experimental error, before and after castration. Sympathetic irritability, on the other hand, was clearly lowered after the operation. This was ascertained by the behavior of the circulatory system to nicotin, which was used as a vasomotor stimulant in these cases because of its selective action on the sympathetic nervous system. The evidence was made more convincing by the added fact that testicular grafts were apparently found to restore irritability in castrates practically to normal. Wheelon concludes that a relationship actually exists between the normally functioning testes and the irritability of the sympathetic nervous system proper. Deprived of these sexual organs, the individuals exhibit structural changes followed by alterations in their physiologic and emotional processes.

THE AVERAGE DURATION OF SICKNESS

It is recognized that much of our data regarding disease is practically valueless because the statistics recorded in different localities and for different purposes are not intelligently coordinated. The facts are on record, but the deductions which can be drawn only from carefully tabulated facts are too often lacking on account of the incompleteness of the records. One of the most promising features about the present public health situation is that the facts regarding disease are beginning to be subjected to the same careful scrutiny and mathematical analysis that have in previous years been given to life insurance tables and other tabulations of business facts. The Prudential Insurance Company of America has issued a reprint containing an address before the National Organization for Public Health Nursing, on "Practical Statistics of Public Health Nursing and Community Sickness Experience," by Mr. Frederick L. Hoffman. After commenting on the well-known lack of uniformity in recording the statistics of visiting nurses, of terminology and of completeness of records, Mr. Hoffman presents the statistics of visiting nurses' associations for Baltimore, Boston, Chicago and Philadelphia for 1912 and 1913. Tabulating these reports, he finds that the four associations in one year gave attention to 58,933 patients, making 429,620 calls, or an average of seven calls per patient. After discussing the general condition of hospitals and hospital treating throughout the country in an endeavor to establish the essentials of an analysis on this subject, Mr. Hoffman finds that the average duration of sickness, as far as can be determined from the fragmentary records, was eleven days for ages under 44 and twenty-three days for ages over 45, and that the average nursing duration for sickness for patients over 45 is seventeen days for males and twenty-five days for females. Many other interesting facts and deductions are presented. Mr. Hoffman's painstaking study of a large mass of hospital reports and statistics is of distinct value, although the most important point emphasized is the meagerness and incompleteness of our data.

AMINS AND URTICARIA

In a recent issue of The Journal, attention was directed to the occurrence of preformed amins in the foods we eat.[1] It was there pointed out that many of these products derived from bacterial decomposition of proteins are already known to exhibit pharmacologic potency, such as an unmistakable effect on blood-pressure, as well as other physiologic phenomena. We are now reminded of an interesting and novel observation by Eustis[2] on the action of one of these amins—betaimidazolylethylamin, derived from the amino-acid histidin. The introduction of a very small amount of this substance through superficial abrasions of the skin promptly gives rise to a localized edema resembling urticaria. This fact has prompted the assumption that betaimidazolylethylamin formed in the gastro-enteric tract may be responsible for urticaria of alimentary origin.[3] On this hypothesis a rational dietotherapy of such urticaria is at once suggested. Eustis proposes, for example, effective purgative treatment along with abstinence from protein in the diet for some days. He says that the intestinal toxemia can readily be judged by frequent examination of the urine for indican, the presence of which is used as a guide to the allowance of the amin-yielding protein in the diet. There are various theories as to the origin of urticarias. Some of the cases of the disease are singularly intractable. Doubtless they have a manifold cause or origin. The amin hypothesis is surely not without significance.

---

[1] Wheelon, H.: Extirpation of the Testes and Vasomotor Irritability, Am. Jour. Physiol., 1914, xxxv, 283.

[1] The Amins in Common Foods, editorial, The Journal A. M. A., Oct. 17, 1914, p. 1398.

[2] Eustis, A.: Urticaria—An Experimental Lesion Produced by the Local Application of Betaimidazolvlethylamin; Its Relation to Intestinal Toxemia, New Orleans Med. and Surg. Jour., 1914, lxvi, 730.

[3] Eppinger, H., and Gutman, J.: Zur Frage der vom Darm ausgehenden Intoxikationen, Ztschr. f. klin. Med., 1913, lxviii, 411.

The Uniqueness of the Individual.—It is impossible to make the inevitable course of a man's destiny comprehensible in all details. Every man from his birth to his death is a unique phenomenon with no exact counterpart in the past or in the future. The observer understands things only within the limits of his own peculiar nature.—Gerhardt Hauptmann.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

CALIFORNIA

Personal.—Dr. Rudolph H. Kocher has been appointed instructor in research medicine in the Hooper Foundation of Medical Research of the University of California, Berkeley. ——Dr. James W. Keeney, San Francisco, is reported to be critically ill at his home.——Dr. Fletcher G. Sanborn returned to his home in Los Angeles, October 24, after an absence of eight months in charge of the Hospital Uyak, Alaska.——Dr. Benjamin F. Walker, Stockton, is in charge of a special first-aid corps organized by a Parisian banker.

New Medical Building.—Working drawings have been completed for the new pathologic building to be erected by San Francisco at the city and county hospital site. The plans call for a two-story building, 97x155 feet. This will contain on the first floor an operating amphitheater, human and animal rooms, inside and outside kennels for housing animals for scientific investigation, a specimen department and cadaver room. On the upper floor will be located two laboratories with the necessary preparation and animal rooms.

COLORADO

Personal.—Dr. J. E. Perkins, mayor of Denver, recently visited Indianapolis to study and inspect the activities of the health board and other departments of the municipal government.——Dr. Franklin E. Wallace, Pueblo, has been elected a member of the state legislature.——Fire in the McPhee Building, Denver, October 3, seriously endangered Dr. Walter A. Jayne who was asleep in his apartment when the fire broke out. He was overcome by smoke, but was rescued by the fire department.

Health Seekers Bureau of Denver.—At a recent meeting of the Denver physicians, the tuberculosis supervisor of the Denver Visiting Nurses' Association told of his work of setting incoming health seekers on the road to life and strength. The physicians adopted a resolution indorsing the work of the supervisor and volunteered to have one of their number assist him during his office hours. Health seeking new comers will find at the rooms of the Denver Visiting Nurses' Association at Fifteenth and California Streets, not only the supervisor, but a physician who will give them an examination and advice between 9:30 and 11 a. m. on Mondays and Thursdays.

GEORGIA

Atlanta Roentgenologists Organize.—On October 29 the Atlanta Roentgen-Ray Society was formed, with an initial membership of fifteen. Pending the adoption of a constitution and by-laws, Dr. George M. Niles was made acting president and Mr. B. E. Sale, acting secretary.

Pellagra and Hookworm at Milledgeville.—The Georgia State Sanitarium at Milledgeville has been selected by the United States government as a station for experimental work in pellagra cases. The patients will be segregated and kept under special treatment and diet, the work being done under the charge of two experts of the United States Public Health Service.——According to examinations made by specialists from the State Board of Health, the percentage of hookworm infection is about 50 per cent. It is estimated that 1,000 cases exist in Baldwin County.

ILLINOIS

Personal.—Dr. William A. Diffinbaugh, Dundee, was thrown to the ground while cranking his automobile, October 23, and fractured his ankle. He is under care in the Sherman Hospital, Elgin.——Dr. Anthony G. Wittman, of the staff of the Elgin State Hospital, has been made medical director of the new Alton State Hospital.

Tuberculosis Dispensary Opens in Quincy.—The dispensary established in Quincy by the Adams County Tuberculosis Association was opened for the inspection of the public November 7, and received patients on the following day. The dispensary will be open on Mondays, Wednesdays and Fridays at hours to accommodate all classes of people.

Elgin Superintendent Seeks Betterments.—Dr. Henry J. Gahagan, superintendent of the Elgin State Hospital, has asked the State Board of Administration for a tuberculosis hospital at an estimated cost of $50,000, a building for incurably insane women at an estimated cost of $35,000, an extension to the dining-room of the institution, and an addition of 500 acres of land to the hospital farm.

Chicago

City to Establish Public Laundry.—Health Commissioner George B. Young announced November 13 that one of the Municipal Bath Houses will soon be turned into a Municipal Laundry for the benefit of the women in the tenement districts.

Anti-Typhoid Inoculation in Holland.—Dr. Caroline Hedger has been asked to go to Rotterdam, Holland, taking with her antityphoid vaccine sufficient for 10,000 Belgian refugees in Holland, where typhoid fever has already appeared. The Chicago Woman's Club has already contributed $300 toward Dr. Hedger's fund. The antityphoid vaccine has been offered free.

Physicians Urge Increased Hospital Accommodations for Contagious Diseases.—Members of the Chicago Medical Society, speaking before the Association of Commerce, November 4, appealed for enlarged hospital accommodations for cases of contagious diseases. It is said that there are more than 40,000 cases in the city every year and that only about 10 per cent. of the number are sent to hospitals; also that the lack of hospital facilities causes failure to report many cases of contagious diseases to the health commissioner for quarantine.

Morals Board Plan.—The council committee on health has recommended the creation of a morals commission of five members whose work will be to study immorality in all its forms, its causes and effects; to recommend measures for the prevention of venereal disease; to report violations of the state laws or city ordinances covering immorality; to study the legal action necessary for the supression of disorderly resorts within three miles of the city; and to recommend measures for the physical and mental rehabilitation of fallen women. The commission is to make reports from time to time to the mayor and city council.

INDIANA

Eye Inspection Ordered.—The Indianapolis City Board of Health has ordered an inspection of the eyes of all school-children, with special reference as to their ability to see ordinary type at an ordinary distance.

Small-Pox in Whiting.—E. L. Dewey, commissioner of the department of health, states that since October 14, sixty-one cases of small-pox have been reported to his department. This department established an isolation hospital October 10. Sixty-one patients have been admitted since that date, and thirty have been discharged. Dr. Edward K. Newton is the resident physician, assisted by four graduate nurses. All children admitted to the public and parochial schools must be successfully vaccinated. Nearly all of the new cases developing are unvaccinated adults. One thing very noticeable about this epidemic is that of variety of types of the disease. One baby aged 3 weeks was admitted on the fifth day of the eruption, a typical confluent type. Those unvaccinated adults for the most part are severe discrete types, a few confluent.

KENTUCKY

Trachoma in Butler County.—Dr. James O. Carson, Bowling Green, with his assistant, spent from October 27 to 29 in Butler County inspecting for trachoma the eyes of the children of fifteen school districts on the north side of Green River. Dr. Carson will make a report of his findings to the State Board of Health, and will also lay the matter before the United States Public Health Service in the hope that a treatment station may be established in this section of Kentucky.

LOUISIANA

Postgraduate School Opens.—The New Orleans Post-Graduate School of Medicine opened for its first session October 26. Dr. Homer J. Dupuy, Jr., is president; Dr. Wilhelm Kohlmann, vice-president, and Dr. Joseph A. Danna, secretary, of the institution. The faculty is composed of staff members of the Charity Hospital, Touro Infirmary, Hotel Dieu and the Presbyterian Hospital.

Reciprocity with California.—At the meeting of the Louisiana State Board of Medical Examiners, October 29-31, a resolution was adopted that the board would accept for registration without examination in Louisiana, all applicants from California who can comply with the rules governing reciprocity with Louisiana. The board announces that an examination will be held in New Orleans, June 3 to 5.

Personal.—Dr. Espy M. Williams, Patterson, has resigned from the Louisiana State Board of Medical Examiners on account of his removal from the Fourth District, and Dr. Leon J. Menville, Houma, has been appointed to fill the vacancy.——Dr. George W. Lewis, New Orleans, fell October 26, fracturing his left arm at the wrist.——Dr. Arthur W. De Roaldes, New Orleans, who has been ill with pneumonia, is reported to be convalescent.——Dr. Allen J. Perkins, Lake Charles, while driving near Mallard Junction, October 23, narrowly escaped death when a magazine shotgun was discharged at his buggy.

MARYLAND

Personal.—Dr. Joseph W. Holland, Baltimore, has been elected vice-president of the Queen Anne's County chapter of the Eastern Shore Society.——Dr. Frederick H. Baetjer, Baltimore, who was operated on for the removal of glands near the shoulder, October 30, is reported to be doing well.

Adler Memorial Annex Dedicated.—The Adler Memorial wing of the Children's Hospital School, Baltimore, was dedicated on November 12, Dr. Frank T. Goodnow, president of the Johns Hopkins University, making the principal address. The new wing, which is the gift of Simon C. Adler, contains twenty-four beds on the second floor. On the floor below there is a room for the children's use as a playroom, a diet kitchen and a room for Roentgen-ray work.

Foot-and-Mouth Disease in Maryland.—On account of the epidemic of the foot-and-mouth disease among the cattle of Maryland, Dr. Nathan R. Gorter, Commissioner of Health of Baltimore, has issued a proclamation cautioning the public to heat all milk to the boiling point before using, in order to destroy the infection. The state veterinarian is making a thorough investigation and immediately quarantining all dairies and herds where the disease is discovered. Shipment of milk from such dairies is prohibited by the State and City Health departments and by the State Live Stock Sanitary Board. The City and State Health departments are cooperating with the Live Stock Sanitary Board in the warfare on the disease, and men from these departments have been sent to Highlandtown and to Howard County to see that all proper precautions are taken to prevent the communication of the disease to human beings.

MASSACHUSETTS

Personal.—Dr. Barry H. Calkin, Boston, after twenty years of practice in Jamaica Plain, has left for his new home in Nova Scotia.——Dr. Lemuel F. Noble, Boston, sailed for Europe, November 7.——Dr. Aubrey J. Collins, Boston, has been appointed a medical inspector of the health department.

Baby-Saving Sunday.—Many prominent physicians of the United States occupied the pulpits in Boston churches, October 8, preliminary to the meeting of the American Association for the Study and Prevention of Infant Mortality. In their addresses these physicians sought to show the causes of infant mortality and how it may be reduced.

Brigham Hospital Formally Opened.—Exercises in celebration of Founder's Day was held at the Peter Bent Brigham Hospital, Boston, at which the principal addresses were delivered by Drs. William H. Welch, Baltimore, and Frank Billings, Chicago, who emphasized the advantages of a teaching hospital. John P. Reynolds delivered the symbolic silver key of the institution to President Alexander Cochrane and Dr. Harvey Cushing, Boston, speaking on behalf of the staff, reviewed the difficulties of getting so large a plant into full operation and stated that he considered the proximity of the Harvard Medical School as the keystone to the hospital's future success.

MICHIGAN

Sicilian Surgeon in Detroit.—Dr. Franco Bonnarito, professor of surgery in the University of Palermo, Sicily, held a clinic and delivered a lecture at Grace Hospital, Detroit, recently.

Personal.—Dr. James Gostanian, Sault Ste. Marie, after fourteen years' practice in Baraga, has moved to Detroit, October 29. The Chippewa County Medical Society gave a dinner in honor of Dr. Gostanian at the Park Hotel, Sault Ste. Marie.——Dr. Benjamin T. Goodfellow, Clio, suffered a fracture of two ribs in an automobile accident near Clio, November 3.——Dr. James N. Garber, Detroit, who was injured in an automobile collision, October 26, is convalescent and expects to resume practice soon.——Dr. Warren H. Taylor, Flint, is suffering at his home from the effects of a cerebral hemorrhage, October 29.——Dr. Orlando E. Harvey, Howell, assistant superintendent of the state sanatorium, has resigned and will practice in Iowa.——Dr. Albert L. Laing, Escanaba, has been appointed local surgeon for the Soo Line. ——Dr. George A. Kirker, Detroit, who has been ill at his home with heart trouble for several weeks, is reported to be impfoving.

MINNESOTA

Health Body Joins Consolidated Charities.—The Municipal Anti-Tuberculosis Committee of St. Paul, on October 30, voted to go out of existence and unite with the Associated Charities of St. Paul.

Southern Minnesota Physicians to Meet.—The annual meeting of the Southern Minnesota Medical Association will be held in Mankato, December 1 and 2, under the presidency of Dr. Hugh F. McGaughey, Winona.

Personal.—Dr. Christian F. Carstens, Keewatin, has been transferred to the Rood Hospital, Hibbing.——Dr. John W. Lee, Minneapolis, who has just returned from abroad, was arrested in Dublin on suspicion of being a spy.——Dr. Eugene A. Hutchins, Minneapolis, is critically ill at Asbury Hospital in that city.

Specialists Elect Officers.—At the annual meeting of the Minnesota Academy of Ophthalmology and Oto-Laryngology, the following officers were elected: president, Dr. Edward J. Brown, Minneapolis; vice-presidents, Drs. John H. James, Mankato, and Thomas S. McDavitt, St. Paul; secretary-treasurer, Dr. John H. Morse, Minneapolis.

Diphtheria.—One hundred and twenty-one cases of diphtheria were reported in St. Paul, October 29, as against thirty cases during October last year. The health department expected soon to have all cases isolated and the spread of the disease stopped. Forty-one cases were also reported in Minneapolis by the school nurses for the week ended October 30.

MISSISSIPPI

Higher Entrance Standard.—At a regular meeting of the Mississippi State Board of Health on Oct. 26, 1914, a resolution was adopted that the definition of a reputable medical college be amended to read as follows: One which is classed as A plus or B by the American Medical Association until Jan. 1, 1919. After this date said colleges shall require an entrance qualification in addition to four years of standard high school work, one year of college work, including courses in physics, chemistry, biology and a modern language. This to apply to all who graduate in 1919, or thereafter. Those graduating before this to be allowed credit for four years or more of regular practice instead of this additional qualification. This is the twenty-fourth state to adopt this higher requirement.

MISSOURI

Anti-Tuberculosis Campaign.—Dr. Louis C. Boisliniere of St. Louis delivered a series of lectures on tuberculosis in six towns in Knox County, October 26 and 27. The campaign was conducted under the auspices of the Knox County Medical Society and was financed by the county court of Knox County.

Health Meet Postponed.—The Missouri Valley Health Congress, planned to meet at St. Joseph, November 27-28, has been postponed until some time in February on account of the wide interest manifested by the health workers. The scope of the congress will be enlarged and adequate preparations made for the meeting in February.

Physicians to Have Right of Way.—An ordinance was passed in the St. Louis Municipal Council recently, which gives physicians the right of way on public streets. Heretofore the fire department equipment, ambulances, United States mail wagons, police patrols and street railway repair wagons have been the only vehicles which had the right of way.

Medical History Exhibit.—The St. Louis Medical History Club is collecting articles for an exhibit at a loan exhibition illustrating the medical history of St. Louis and Missouri to be conducted under the auspices of the Missouri Historical Society. The exhibition will be held in Jefferson Memorial Building, beginning December 2 and will continue for two weeks.

Elected to the Legislature.—The following physicians, all reputable practitioners, have been elected members of the state legislature: In the Senate, Dr. W. Lee Welch, Mountain View, and Dr. John S. Wallace, Brunswick; in the House of Representatives, Dr. Thomas B. Cook, Rayville, Ray County; Dr. Guy B. Mitchell, Branson, Taney County; Dr. James A.

Waterman, Breckenridge, Caldwell County; Dr. James R. L. Womack, Houston, Texas County; Dr. Cassius M. C. Wilcox, Kirksville, Adair County.

NEBRASKA

Medical Fraternity Chapter Organized.—On November 2, a chapter of the Alpha Omega Alpha Society was organized at Omaha in the medical department of the University of Nebraska. The charter members being the dean, Dr. Willson O. Bridges, Drs. Irving S. Cutter, Charles W. M. Poynter, Oscar T. Schultz and Palmer Findley, and Messrs. Blaine A. Young and J. Jay Keegan.

NEW JERSEY

Dispensaries Opened.—A room in the Paterson City Hall has been asked for as a free dispensary and was opened October 31. The dispensary will receive patients at 9 a. m. and 2 p. m., and will be in charge of City Physician Dr. James F. Briody and Assistant Physician Dr. Joseph W. Williams.——The Tuberculosis Clinic for West Hudson, located at 41 Kearny Avenue, Kearny, established by the Hudson County Board of Freeholders, was opened for inspection, October 17. Dr. Alfred A. Mutter, Arlington, is in charge of the clinic.

Newark's Experience with Vaccination.—A folder with this title is now being distributed by order of the Board of Health. Among the figures given for the small-pox epidemic of 1901-1902 are the following: In 195 cases, totally without vaccination, 56 deaths resulted. Among 70 vaccinated persons exposed to small-pox in their homes, 4 deaths occurred. Among 131 cases in which the vaccination mark was more than 5 years old, there were 12 deaths. In 7 cases in which the vaccination mark was less than 5 years old, there were no deaths.

NEW YORK

New York City

Training Teachers for Defective Children.—The department of New York University for the training of teachers of defective children has 115 teachers enrolled. A clinic has been conducted in connection with this department and the indications are that its facilities will soon be taxed.

Handbook of the Bureau of Infectious Diseases.—A new edition of the Handbook of the Bureau of Infectious Diseases is now ready for distribution. Its scope has been considerably widened so that it now embraces a description of the varied activities of this bureau in all its details. It is at one time a manual of instruction for employees of the bureau and a book of information to students of this department of public health work. On request copies will be sent to those interested.

Milk Pasteurization and Foot-and-Mouth Disease.—The outbreak of foot-and-mouth disease in a large herd of cattle at Woodhaven, L. I., and possibly also at another large dairy farm on Long Island, led to the adoption at the meeting of the Board of Health, November 13, of resolutions requiring the pasteurization of all milk brought into the city. It is said that 99 per cent. of the supply is pasteurized under ordinary conditions, so that this order will not carry with it any serious hardship for dairymen.

Factory and Shop Inspection.—The Health Department has formulated plans providing for the sanitary inspection of all shops and factories in this city. The information thus acquired will be turned over to employers and employees who can then cooperate to secure any needed reforms. The department also announces that through its Bureau of Public Health it will be glad to assist in formulating sanitary industrial standards for the prevention of occupational diseases. This movement is the outgrowth of the garment workers' strike four years ago, when it was ruled that every industry should be responsible for the sanitary conditions in that industry.

Inquiry into Coroner's Officers.—This inquiry is being conducted before Commissioner Wallstein, and thus far a number of coroners and officials of the Health Department have been examined. The testimony presented showed that in 5,749 deaths investigated during the year 1913, necropsies were performed in only about 13 per cent. Dr. James Ewing expressed it as his opinion that this was far too small a number, and pointed out that New York got along with practically no aid from the science of legal medicine and that it was highly inadvisable to allow any one not trained in pathology to diagnose causes of death. A great deal of evidence has been presented, showing that in many instances the cause of death in the coroner's reports is very inadequately stated.

NORTH CAROLINA

Medical Legislators.—Among the members of the medical profession recently elected to the legislature are Dr. Alfred A. Kent, Lenoir and Dr. E. J. Tucker, Roxboro.

Fund for Distressed Belgians.—Dr. Samuel Westray Battle, Asheville, who was appointed by the governor, chairman of the North Carolina State Committee of Mercy to solicit aid for the distressed Belgians, has already $1,000 in hand contributed by the citizens of Asheville.

State Board Exhibit.—The State Board of Health made a creditable exhibit at the recent state fair at Raleigh. One of the attractive features of the exhibit was the analysis of a number of patent and proprietary articles, exposés of which have already been made in The Journal.

PENNSYLVANIA

The Pittsburgh Bulletin on Contagious Diseases of Children.—The October number of *The City's Health*, the monthly bulletin issued by the Pittsburgh Department of Health, is devoted especially to scarlet fever, diphtheria, measles and whooping-cough. Figures are given showing the abrupt fall in the diphtheria death-rate since the introduction of antitoxin in 1894, the rates per 100,000 population being 140 per 100,000 in the five-year period 1889-1893, 54 per 100,000 in 1894-1898 and 26 per 100,000 in 1909-1913.

Personal.—Dr. John H. Galbraith, Altoona, has been transferred from the associate staff of the Altoona Hospital to the active staff in the orthopedic department.——Dr. William A. Lynott, Scranton, has been appointed a member of the medical staff of the Federal Bureau of Mines in charge of the eye division.——Dr. Charles F. Altmiller has tendered his resignation as pathologist of the Bloomsburg Hospital.——Dr. F. McCall Keating, Philadelphia, has been appointed pathologist, and Dr. W. Wellington Woodward, West Chester, has has been made anesthetizer at the Chester County Hospital.

Philadelphia

Insanitary Conditions in Schools.—A report compiled by Dr. Walter S. Cornell, head of the medical inspection of the public schools says the sanitary condition of the public schools covering 304 buildings gives 586 specific statements of insanitary conditions.

Aid Association Election.—At the annual meeting of the Aid Association of the Philadelphia County Medical Society, November 9, the following officers were elected: president, Dr. Jacob R. Shellenberger; vice-president, Dr. James C. Wilson; secretary, Dr. Lewis H. Adler, Jr., and treasurer, Dr. John B. Turner.

The Making of a Woman Physician.—Motion pictures of the life of a woman medical student were shown for the first time at a private exhibition held at the Woman's Medical College. The pictures, entitled "The Making of a Woman Physician," recently were made at the college and consisted entirely of actual scenes, showing professors and students at their work and play. These films are to form part of the College exhibit in the Educational Building at the San Francisco Panama-Pacific World's Fair.

Personal.—Dr. Seneca Egbert, dean of the Medico-Chirurgical College, was the guest of honor at a banquet given by the first-year class of that institution at Kugler's, November 5. ——Dr. Edw. K. Tullidge, a resident of Philadelphia but attached to the Department of Charities, New York, will leave shortly for Vienna, Austria, to serve in the field hospital corps of the Austrian army.——Dr. John E. B. Buckenham has been appointed by Director Harte of the Department of Health and Charities, as superintendent of the Philadelphia Hospital for Contagious Diseases at a salary of $3,000 a year. Dr. Buckenham has been acting superintendent provisionally, succeeding Dr. William H. Walsh, who became superintendent of the Children's Hospital.——Dr. John A. Kolmer, pathologist at the Municipal Hospital for Contagious Diseases, has been appointed to the staff of that institution by Director Harte.

SOUTH CAROLINA

Sanatorium Site Selected.—The site for the State Tuberculosis Hospital has been selected at State Park. The legislature has made an appropriation of $10,000 for the institution, for which plans are being prepared.

Personal.—Dr. William Weston, Jr., Columbia, has been elected chief of staff in the new children's clinic recently opened in that city.——Dr. Thomas J. Strait, Lancaster, has resigned as senator from Lancaster County to accept the position as superintendent of the State Hospital for the Insane, Columbia.

TEXAS

Measures Against Trachoma in Schools.—A campaign against trachoma in Texas City carried on by the Mothers'-Teachers' Association began October 28, with the examination of schoolchildren. If the parents of children found to have the disease are unable to pay for treatment, the children will be given treatment at the expense of the Mothers'-Teachers' Association.

Personal.—The office of Dr. Ralph Bailey, Gatesville, was destroyed by fire, November 1, with a loss of about $2,000. ——Dr. Ernest W. Nitsche, Jr., Dallas, and Dr. Harold L. Warwick, Fort Worth, are attending the wounded in hospitals in Berlin and France, respectively.——Dr. Alva W. Carnes was pinned under his overturned automobile near Hutchins, October 8, but was only slightly injured.——Dr. Jim M. Hart, Woodbine, was thrown from his buggy in a collision with a street car, October 2, and painfully injured. ——Dr. Frederick K. Fisher, Galveston, was injured in a collision between two automobiles, September 29.——Dr. George W. Nibling, San Angelo, has been elected secretary pro tem. of the Tom Green County Medical Society, succeeding Dr. Lester C. G. Buchanan, San Angelo.

WISCONSIN

Personal.—Dr. Sidney H. Wetzler, Milwaukee, suffered severe injuries and burns when his automobile overturned in Milwaukee, November 7.——Dr. Daniel Hopkinson, Milwaukee, who suffered amputation of a toe recently, is convalescent.——Dr. Raymond C. Meyer, Elkhart Lake, has been appointed local surgeon for the Chicago, Milwaukee and St. Paul Railway.——Dr. Albert F. Schlick, Algoma, has been adjudged insane and ordered committed to the Northern State Hospital.

CANADA

Personal.—Hon. Dr. Joseph O. Reaume, Windsor, Ont., who for many years was minister of public works for Ontario, has been appointed registrar of the county of Essex. ——Drs. Herbert J. Hamilton and Edmund E. King, Toronto, have been elected to the Medical Council of Ontario for the territorial divisions of West and East Toronto, respectively. Sir James A. Grant, Ottawa, the only surviving member of the original Medical Council of Ontario, has again been reelected representative for the University of Ottawa.——Dr. Edward Worthington, surgeon to H.R.H., the Duke of Connaught, has left for England on his way to the front.

Canadian Medical Colleges.—Eighteen students have registered in the first year at the University of Alberta in the faculty of medicine. Dr. Allan C. Rankin, bacteriologist to the university, accompanied the first Canadian contingent abroad.——The number of medical students registered in the first year at Dalhousie University, Nova Scotia, is thirty-four, which is inclusive of dental students. No one has yet been appointed to the chair of pathology in this university. ——One hundred and ten freshmen have been enrolled at McGill University. The Faculty of Medicine offers to furnish the staff for a general hospital for service in the European war.——There are seventy-six freshmen in medicine at Queen's University, Kingston, Ontario. Dr. A. H. Lothrop, formerly of Columbia University, has been appointed Professor of Biological Chemistry. The faculty has offered to equip a general hospital for the front.

Hospital Notes.—The Moncton (N. B.) General Hospital has received a contribution of $1,000 from the Ladies' Aid toward the $8,000 required for completion of the proposed nurses' home of the hospital.——Thirty thousand dollars is to be expended on a new hospital at Miramichi, N. B.——A new hospital is to be built at Timmins, Ont., by the Hollinger Gold Mines Company. It will contain thirty beds.——A new wing was formally opened recently in connection with the Galt, Ont., hospital.——The Owen Sound Hospital, Ontario, is establishing a maternity ward.——The government of the province of Quebec will contribute $15,000 a year to the hospital at Maisonneuve.——The new hospital at Sherbrooke, Quebec, has been opened. It cost $88,229.——Dr. James C. Fyshe, Montreal, Que., superintendent of the Edmonton General Hospital, accompanied the first contingent to England.——Wainwright, Alberta, is to build a hospital at a cost of $10,000.——Dr. B. L. Wickware has resigned as superintendent of the Moose Jaw General Hospital, Saskatchewan. ——A hospital was recently opened at Summerland, B. C. It will accommodate about thirty-five patients.

GENERAL

Health Sermons in Richmond.—Fifteen of the pulpits of Richmond were filled November 8 by physicians in attendance at the annual meeting of the Southern Medical Association, who preached special "health sermons."

Iron Mountain Surgeons State Meeting.—The third annual meeting of the Arkansas Association of Iron Mountain Surgeons was held at Little Rock, November 17 and 18, under the presidency of Dr. Charles S. Holt, Fort Smith, Ark.

Hookworm in Panama.—The Rockefeller Hookworm Commission has established a station on the Isthmus of Panama for systematic work against hookworm which seems to prevail to a degree hitherto unsuspected. Of the first 1,000 persons examined at the laboratory, more than 700 were found to be harboring hookworm.

Executive Committee for San Francisco Session.—The Executive Committee of the Local Committee on Arrangements for the next annual session of the American Medical Association, to be held June 22-25, 1915, in San Francisco, is as follows: Dr. Herbert C. Moffitt, chairman; Dr. Solomon Hyman, secretary, and Drs. Emmet Rixford, George B. Somers, J. Henry Barbat, William P. Lucas and Philip Mills Jones, all of San Francisco.

New York and New England Surgeons Meet.—The twenty-fourth annual meeting of the New York and New England Association of Railway Surgeons was held in New York City, October 21-22, under the presidency of Dr. Clifford A. Pease, Burlington, Vt. New York City was decided on as the place for the meeting which celebrates the quarter-century anniversary of the organization of the association, and the following officers were elected: president, Dr. William H. Marcy, Buffalo, N. Y.; vice-presidents, Drs. David H. Lake, Kingston, Pa., and Halbert G. Stetson, Greenfield, Mass.; c[illegible] [illegible]etary, Dr. George Chaffee, Brooklyn; r[illegible], Dr. John H. Reid, Troy, N. Y.; and treasurer, Dr. James K. Stockwell, Oswego, N. Y.

Meetings of Railway Surgeons.—The Southern Association of Railway Surgeons held its annual meeting in connection with the meeting of the Southern Medical Association at Richmond, November 9, under the presidency of Dr. Duncan Eve, Nashville, and elected the following officers: president, Dr. Thomas H. Hancock, Atlanta; vice-president, Dr. Southgate Leigh, Norfolk, Va.; and secretary, Dr. Clarence H. Vaught, Richmond, Ky.——The twentieth annual meeting of the Big Four Railway Surgeons Association, New York Central Lines, was held in Indianapolis, November 12, and the following officers were elected: president, Dr. Isaac L. Firebaugh, Robinson, Ill.; vice-presidents, Drs. Walter M. McGaughey, Greencastle, Ind.; Clayton W. Russell, Springfield, Ohio, and John C. Sexton, Rushville, Ind.; and secretary-treasurer, Dr. Leonard A. Ensiminger, Indianapolis.

FOREIGN

Santoro Prize Given to Discoverer of Induced Pneumothorax.—For his pioneer work on treating pulmonary tuberculosis by an artificially induced pneumothorax, Professor Forlanini of the chair of clinical medicine at the University of Pavia has been awarded the Santoro prize of 10,000 lire ($2,000). This prize is given every two years by the Academy of Sciences at Rome for the most important contribution to science that has direct practical application.

The New Frankfurt University.—The issue of the *Frankfurter Zeitung* for October 25 is devoted entirely to the ceremonies connected with the inauguration of the newly founded university at Frankfurt a. M. It opens with five departments, the medical faculty having enrolled Edinger, Ehrlich, Embden, B. Fischer, Göppert, Herxheimer, Neisser, Rehn, Schwenkenbecher, Sioli, Spiess, Voss, Walthard and others to a total of twenty professors. Many of them are now at the front and there will be few students this year but the university has been duly launched. The Kaiser is said to have signed the statutes of the university on the historic date, August 1. There has long been a nucleus for a university at Frankfurt in several scientific institutes; pioneers in research and accomplishment. Chief among these is the birth-place of the side-chain theory, the Institute for Experimental Therapy and Cancer Research, of which Paul Ehrlich is director. Another is the G. Speyer Institute for Experimental Chemotherapy, where salvarsan first saw the light.

Deaths in the Profession Abroad.—F. Gerlier, aged 74, the Swiss physician who first described in 1886 what he called *vertige paralysant*, a disease attacking farm laborers and stablemen, characterized by attacks of pain, paresis, vertigo, ptosis and muscular contractions. The disease was prevalent for a time in his district but then died out. It is comparatively frequent in Japan, but rarely encountered elsewhere.——S. Engelsted of Copenhagen, at one time editor of the *Ugeskrift for Laeger*, and chief of the board of public health, aged 91.——K. Heilbronner, professor of nervous and mental disease at the University of Utrecht, succumbed to apoplexy last month, aged 44.——D. Morisani, one of the leading surgeons of Italy, professor of surgery at the University of Naples and author of numerous works on surgical subjects and of methods of suturing the intestine, fractured patella, etc., aged 65.——Our German exchanges this week add ten more names to the long list of members of the profession killed at the front. Among them is O. Loeb, privatdocent of pharmacology at the University of Göttingen; J. Diebitsch, G. Herrenschneider, Hermann, W. Kösel, W. Magnus, Paradies, Sauberzweig, Timmermann, Wertheim, H. Schultz and H. Barth of Berlin. Ten others are reported as wounded.

WAR NOTES

German Surgeons Decorated.—It is reported from Copenhagen that 118 medical officers have been decorated with the iron cross.

New Appointment.—Col. Michael W. H. Russell, R.A.M.C., has been appointed deputy director general of the Army Medical Service and temporary surgeon-general in succession to Surgeon-General W. G. Macpherson, A.M.S.

Practice of Medicine in France Opened to Belgian Physicians.—The *Medicina Contemporanea* of Lisbon states that a movement has been initiated by the members of the profession in France to throw down the barriers to the practice of medicine in that country for registered physicians from Belgium who may wish to reside in France.

Compulsory Accident Insurance for University Students.—The *Wiener klinische Wochenschrift* states that all students matriculating at the University of Vienna are required now to take out an accident insurance policy for which they pay about 13 cents (50 heller) for the semester. This is in accordance with a state decree, dated September 18, and includes all persons between 15 and 65.

Epidemic Diseases.—The *Wiener klinische Wochenschrift* of October 22, reports for the week ending October 3, 98 cases of cholera in Austria proper (9 in Vienna) and 231 in Hungary, with 11 cases in Vienna since that date. The *Berliner klinische Wochenschrift* reports 617 cases of dysentery in Prussia in the week ending October 3, and states that cholera has appeared at Kiev, and plague at Saloniki and Lisbon.

Servian Government Desires Medical Aid.—The Servian government is in immediate need of the service of qualified bacteriologists and physicians experienced in the treatment of epidemic diseases. The terms of service and remuneration will be made by arrangement. Applicants who are interested should submit their offers with references to the Secretary of the Servian Legation, 195 Queens Gate, London, S.W.

American Red Cross at Breslau.—Our German exchanges of October 20 mention the arrival at Breslau of the American Red Cross party in charge of Dr. Breadbury, accompanied by Count Talleyrand as the representative of the German Red Cross. There are twelve physicians and fifty-two nurses in the party and half of this number were distributed among the Breslau hospitals while the other half continued the journey to Vienna. Four cars with supplies for dressings, etc., were left in Breslau as the special train went on its way.

Funds Required for Physicians of Belgium.—A professional Belgium committee has been formed, consisting of Professors Stiénen and Jacobs of the University of Brussels, Professor Béco of Liége, Professor Schockaert of Louvain and Professor Benglemans, secretary of the National Therapeutic Society of Belgium, for securing immediate relief for doctors and pharmacists deprived of means of livelihood and an annuity fund for the windows and orphans of those killed in the war. Details will be arranged by a central committee in London, representing the United Kingdom.

Physicians Decorated for Bravery in the Field.—The *Wiener klinische Wochenschrift* brings each week an official list of three or four physicians whose name and regiment are thus published by the Austro-Hungarian authorities in token of appreciation for distinguished services and bravery. In addition to these the cross of Franz-Joseph order has been bestowed on Drs. J. Janak, K. Brust and A. Hocevar. The gold cross with the ribbon of the bravery medal has been given to R. Stigelbauer and R. Kaiser. Others decorated are M. Szabo, L. Redlich and R. Kraus. The iron cross has been bestowed on 120 physicians in active work with German troops at the front, including Kümmell, Rehn, Löffler, Payr, Römer, Salomon and Posner. It has also been presented to the trained nurse, Miss Scherhans, at the head of the nursing staff of the German army. She has been working on the eastern battle-line.

Wounded Soldiers and Sailors.—Between October 24 and 26 hospital ships arrived at Southampton, bringing nearly 2,000 invalid wounded troops, including a number of Belgians and Germans, who were sent to hospitals in various parts of Great Britain.——On October 26 the Hospital Ship *Oxfordshire* reached Queenstown from Boulogne, bringing twenty-six wounded officers and 700 wounded non-commissioned officers and men.——An anonymous donor has offered a fully equipped emergency naval hospital to the government, and this hospital, known as the Fourth Naval Hospital, has been erected in close proximity to the Royal Naval Hospital, South Queensferry. The buildings comprise a central administration block of eight rooms with wards radiating from the center of each side and from three of the angles.——The Second Southern General Hospital now has about 600 patients, not including the convalescent branch at Bishop's Knoll. The largest portion of the patients are composed of wounded and sick from the expeditionary force.——The Welsh Military Hospital, offered in behalf of the principality by the Prince of Wales to the War Office, has been accepted and has been located at Netley, to go overseas when required. The buildings are portable and of wood and galvanized iron, and will accommodate 104 patients in four wards pavilions. The hospital is in command of Lieut.-Col. A. W. Sheen, R.A.M.C.

Care of Wounded in Germany.—The surgeon-general of the German army, von Schjerning, published recently in a German lay paper (*Norddeutsche Allg. Zeitung*) the following report on the care of wounded and the health of the troops in the western seat of war. He commented on the difficulties inseparable from the rapid advance of the troops and the fact that at times the violence and long continuance of the artillery fire often rendered it impossible to seek the wounded on the battle-field, because "for days at a time certain points were shelled furiously. Every day many were wounded. The large battles and skirmishes over such a long extent of firing-line has made the care of the wounded extremely difficult. Surgeons and bearers had to submit to the military exigencies of the campaign, and there were many hours when it would have been madness to attempt to bring in the wounded. On the whole, however, the arrangements proved satisfactory in every way. All the wounded had their wounds bandaged on the battle-field, and this done so well that often, in fact, nearly always, the first dressing could be left unmolested until they reached the home zone. The severely wounded were brought at once to the field hospital and then to the base hospitals. As the troops were constantly pushing forward, the field hospitals had to be constantly changed and prompt transference to the base hospitals was necessary. But all was done with as little discomfort as possible. The slightly wounded were taken to the base hospitals in carts, autos or on foot; in one week there were about 40,000 to 50,000 of these, and they were all sent back to the home zone. Every train and vehicle bringing ammunition or other supplies to the front was emptied at once and sent back filled with the wounded. Only very rarely any actual hospital trains came through to the front. We had to use freight trains as we could not let the wounded accumulate for fear of bringing on epidemics. We have succeeded in avoiding this. The health of the troops is good. Catarrhal enteritis —isolated mild dysentery cases—is growing less frequent, and there are only scattered cases of typhoid.

"Of course the journey in the freight cars was not always comfortable for the wounded. But it was better to send the lightly wounded back home where they could get good shelter and care than to let them lie around in more or less demolished houses and often without adequate care. I reiterate: The transportation was satisfactory and the wounded were well taken care of at practically every station. I inspected personally 30,000 wounded at Coblentz, Liége, Namur, Sedan, Montmedy and elsewhere along the front and I did not find one who was not properly bandaged. The work on the battle-field and in the base hospitals was the hardest. Physicians and nurses worked day and night with the utmost devotion of all their energies, and I am glad to say that this was fully appreciated by the Kaiser and the military officers. The large number of iron crosses which have been bestowed on the physicians with the army testifies to the appreciation of their devoted labors. Of course some wounded man here or there did not have everything to suit him and especially the family complained at times. War nowadays takes no regard for anyone. But it would be too bad to generalize from a few scattered cases, as sometimes happens.

"There are 9,000 physicians in the field. How many are left at home, and who is adapted for service in the field and willing? Surgeons are needed in the home zone too, and as we have sent the wounded back home to be taken care of, the main task is thus placed in the hands of medical men in the home zone, so that we hope there are plenty of physicians and nurses for this task. Many nurses here at the front can find no work to do. It is utterly impossible to use them on the battle-field under present conditions of warfare and the frightful artillery fire. In one of the base hospitals I met Kraus and Pfeiffer and both confirmed my impression that the organization, the personnel and the supplies in the medical department answered all requirements, and they volunteered in addition that the work of the medical men on the firing-line was beyond all praise. As further testimony to this I mention the words of admiration for the work of the medical department spoken by the chaplain in chief for the army who has been at the front. Everywhere under the sign of the Red Cross kindly hands are ready to help and care for the wounded. We can be quite serene. The only thing that has given us trouble at times hitherto has been the transferring of the wounded from the field to the base hospital. But for this service further means of transportation have already been provided. Our Berlin autobus has proved the most useful; I took seventy-five of these along with me at the opening of the campaign. Several other cities have now sent us their park autobuses. And as now the supply of dressing materials and drugs is regularly replenished, we can be content."

LONDON LETTER

LONDON, Oct. 30, 1914.

Great Britain During the War

A visitor to this country would see nothing in the demeanor of the people to show that we are engaged in the greatest war the world has ever seen and in a life-and-death struggle to maintain our position among the nations of the earth; a war which is bringing death into many homes and into every circle in the land. The general feeling is one of calm determination to see this thing through which has been forced on us. In the streets he would notice some changes. At every turn the khaki-clad recruits are encountered and in the fashionable shops there is an unwonted quietness; but elsewhere the motto of the war, "business as usual," requires no enforcing; every one goes about his work as usual, the amount of unemployment is not abnormal, and the necessaries of life have advanced little in price. In London by night a great change would be noticed. The German dropping of bombs from aeroplanes on cities has caused great restriction of street lighting in London. The number of street lights is diminished and those which are used are covered above so that they cannot be seen from aeroplanes. Shopkeepers are not allowed to show lights which illuminate the streets. The metropolis is in semidarkness. As a result a few persons have been run over by motor cars and killed. Many of the theaters have reduced the usual evening performances to two in the week and give matinees instead. Wounded are arriving in such numbers that all the hospitals in the country, permanent and improvised, are being used for their accommodation. In three days as many as 2,000 were landed at Southampton. Over 700 wounded Irish soldiers have been landed at Cork from a hospital ship and distributed in hospitals in the South of Ireland. The War Office has accepted 247 hospitals organized by the British Red Cross, containing 8,077 beds. Free lectures are being given to the public on camp, ship and hospital hygiene, and the usual ambulance lectures have been greatly increased in number and attended by women in large numbers.

EFFECT ON THE MEDICAL PROFESSION

It has been necessary to increase the army medical corps by a large number of surgeons drawn from civil practice who enlist for the period of the war. This has created a shortage of practitioners, particularly of the young men who enter the service of institutions. As a consequence appointments usually filled by men are now offered to women physicians in greater numbers than they can take them. Another effect is a shortage of medical students at the schools, so great as to threaten a deficiency in the supply of physicians in the future. Not only have medical students gone to the front as dressers, but many have enlisted as ordinary soldiers. At Cambridge only sixty-four medical students have entered this year as compared with 116 last year. At one college noted for its medical studies thirty-two entered, but only seventeen came into residence. In order to supply the demand for army surgeons the various medical corporations have antedated their examinations this year. On the field of battle many army surgeons who have distinguished themselves by their bravery in attending to the wounded are mentioned in dispatches and some have met their death. Every number of the medical journals contain obituaries of physicians who have fallen.

THE DRUG SUPPLY

The first effect of the war was greatly to increase the price of imported drugs; but now many drugs have fallen, though the general level is still much above normal. Large shipments of many drugs have been received, and the advice issued by the government, given in a previous letter to THE JOURNAL, to avoid as far as possible prescribing drugs of which the supply was restricted, appears to have been followed. Some drugs, however, have continued to advance in price. Atropin is extremely dear and phenol (carbolic acid) is three times its normal price, because not only is it extensively used as an antiseptic, but it is also employed in the manufacture of explosives. On the other hand, some drugs are lower in price than normal. Menthol is an example for the reason that supplies which would ordinarily have gone to Germany have been diverted to English ports.

Sanitation in Training Camps

The local government board has called on the medical officers of health to cooperate with the military medical authorities regarding the insuring of satisfactory sanitary conditions for the various training camps of the home army, which at the time of writing contain over 700,000 men. The points on which special advantage from such cooperation is looked for are (1) provision of suitable water supplies and prevention of their contamination; (2) disposal of garbage and refuse; (3) drainage and conservancy, and (4) control of infectious diseases and disinfection. The good effects of this cooperation were soon manifest, and it is worthy of note that up to October 10 among 600,000 men there had been only ten cases of typhoid fever. A committee is to be formed consisting of members of the society of medical officers of health and the military medical authorities to coordinate this work.

Prize for Army Sanitation

The Chaddwick Trustees have announced that they will award the Gold Medal with a premium of £50 to the medical officers of the army and navy, respectively, who shall be adjudged, on the nomination of the Directors General of the respective services, to have achieved the most toward promoting the health of the army and navy, the military medical authorities to coordinate their work. The War Office has also lost no time in sanctioning the construction of an apparatus devised by Mr. James Menzies and Dr. Myer Copland for a system of destructive distillation of sewage, capable of providing for 12,000 men in the field.

Khaki the Usual Costume

Not only in universities "khaki's your only wear," for, besides being accepted as "academic costume" at Oxford and Cambridge, barristers have been allowed to appear in khaki in court, in place of the time-honored wig and gown on throne, that is, those who are called up in their territorial regiments and can get leave to attend to some of their professional duties.

The American Women's Hospital at Paignton

An interesting note on the American Women's Hospital, by Mr. Ernest Lane, F.R.C.S., Surgeon to St. Mary's Hospital, London, who is in charge, appears in the *St. Mary's Hospital Gazette* for October. Mr. Paris Singer placed his residence at Paignton, overlooking Torbay, on the beautiful Devon coast at the service of the American ladies, and the entire cost is sustained by Americans. It contains 200 beds with operating theatre, Roentgen-ray room and admirable lavatory and bathing accommodations. September 27, at twenty-six hours' notice, the hospital received its first batch of wounded, 130 in number, from Mons and Soissons. They landed at Southampton and went by train to Paignton, where they were transferred without a hitch, in good spirits. Most of them had not had their clothes off for two or three weeks, and had had little food, some having lain wounded in the trenches for two or three days. The cases were naturally septic for the most part, but being nearly all shrapnel wounds discharged freely from an open surface. A second batch of twenty-nine cases, mostly convalescents from Davenport, was received October 5, and a further batch of 121 October 6. The rapid recoveries made under rest, good food and skilful care is indicated by the fact that of the first 159 cases, seventy had been discharged by October 6. The executive staff of the hospital consists of Lady Arthur Paget, Mrs. John Astor, the Duchess of Marlborough, Walter Burns, Esq., Lady Randolph Churchill, Mrs. William Eustis, Mrs. Walter Burns, Lady Henry, Mrs. Hoover and Mrs. Owen.

Casualties

In no previous war have the medical casualties been so heavy. So far as I have been able to keep track, at the time of writing, and taking army and navy together, there are killed 16, wounded 18, prisoners 46, missing 14. The large number of prisoners is partly accounted for by the rear guard action of the period between the retreat from Mons and the time at which the allies assumed the offensive. Naturally in the retreat many wounded and medical officers in charge had to be left behind, and thus became prisoners.

PARIS LETTER

Paris, Oct. 29, 1914.

The Death of Dr. Emile Reymond

Dr. Emile Reymond, senator of the department of the Loire, has just met a heroic death. He was wounded while reconnoitering in an aeroplane above the German lines. He kept his head in spite of cruel suffering and, continuing to steer his machine, brought it down between the German and French lines. While being removed in the ambulance, the intrepid aviator was able to report with precision the result of the mission that he had accomplished. The commanding general gave him the cross of the Legion of Honor at his bedside.

Emile Reymond was born at Tarbes, April 9, 1865. He was the son of the great engineer, Francisque Reymond, who was director of the Ecole centrale. Emile Reymond was a laureate of the Académie des sciences, of the Faculté de médecine and of the Assistance publique. He published important surgical works, and had already acquired a reputation as a practitioner when, at the death of his father, he was elected senator. Reymond early perceived the possibility of the great development of aviation and became its ardent advocate before the senate. Aug. 29, 1910, he passed brilliantly his examination for pilot and afterward accomplished numerous flights across France, even making his electoral campaign in an aeroplane. The same year he was placed at the head of the national committee of aviation and used his greatest efforts to have the aviation branch of our army provided with 700 aeroplanes. Dr. Reymond believed that the aeroplane might be of great utility for the health service as a means of facilitating the search for the wounded on the battle-field after action and perhaps even afford rapid transportation to the ambulances.

At the time of the declaration of war, Dr. Reymond, who was a major of the first class in the military health service, insisted on being transferred to the corps of aviators and sent to the firing-line. He left with a squadron of the army of the east and his courageous conduct earned him mention in the order of the day.

The Treatment of Wounds Received in Battle

In one of the last sessions of the Société de chirurgie de Paris, several papers on this subject were read.

Dr. Paul Riche, surgeon of the hospitals of Paris, believes that it is necessary to distinguish carefully between bullet wounds, which are the only aseptic ones, and wounds from shrapnel and shell. In the case of the latter, abstention from operation must not be confused with conservation. The aim should always be conservative, but it is necessary also to operate freely and early, and when there is a gaseous septicemia to operate if the traumatic lesions compromise the future function of the member or if they do not, to make deep incisions beyond the zone infiltrated with gas. The latter point is essential.

Dr. Rochard, surgeon of the hospitals of Paris, while agreeing with Dr. Riche, emphasized the good results he has obtained with a relatively strong solution of phenol. Dr. Henri Toussaint, military physician, emphasized the advantages of early and preventive incision of wounds even in treatment at the front for wounds made by shrapnel or fragments of shell. When once a sufficient channel of exit has been opened to the products of infection, it is necessary to refrain absolutely from attempting to close the wound either by suture or by clips. Toussaint has observed two cases in which clips appear to have caused phlegmonous complications which improved after the removal of the clips and drainage of the wounds.

As for puncture, Dr. Picqué believes that it is necessary to distinguish between septic and aseptic wounds, of which the first only should be incised.

The Transportation of the Wounded

Since the beginning of the war, the government has been trying to improve the transportation of the wounded and has taken up with the railway companies the creation of sanitary trains. The companies have organized a certain number of sanitary trains, composed in part of freight-cars, arranged to permit the transportation of the wounded on litters and in part of cars arranged for the wounded who were able to travel seated. Nine wounded men may be transported in a freight car and forty may travel in a car arranged for those who can travel seated. Altogether these trains can transport 70,000 wounded. The minister of public health is, moreover, studying at present, means of using boats and of removing soldiers from the field of battle by canals, rivers and smaller streams. Forty-four wounded men, with all the medical staff and supplies needed, may be transported on a boat. While transportation by water is slow, it is accomplished without shock, and under such conditions that the wounded may be treated as if in a hospital.

Aid for Belgian Students

At its last session, the council of the Université de Paris unanimously resolved that Belgian students who before the war had been matriculated in one of the universities of their own country might become matriculated in the schools of the Université de Paris without having to pay the matriculation, inscription and library fees. Young Belgians from the Belgian establishments of secondary education will likewise be received if they fulfil the conditions exacted by the Belgian universities. In default of diplomas and certificates, the young people may prove their qualifications by such means as are possible, for instance, certificates of French or Belgian diplomatic or consular agents.

Localities Without Physicians and Physicians Without Patients

Many communes in the vicinity of Paris and in the departments have been left without physicians by the mobilization. Also the invasion of the north and northeast of France has driven out a certain number of physicians who are deprived of all resources and all patients. The Société médicale des hôpitaux de Paris has therefore requested of the dean of the Faculté de médecine to constitute himself a receiving center for the requests from communes for physicians and for the applications of physicians without practice.

Marriages

Frederick Elmer Munch, M.D., Chicago, to Miss Alma B. Kundert of Racine, Wis., at Martintown, Wis., October 28.

Frank Samuel Child, Jr., M.D., to Miss Helen Horton Bayles, both of Port Jefferson, L. I., N. Y., October 22.

Victor Eugene Kaufman, M.D., Canton, Ohio, to Miss Ella Lucille Moody of Carrollton, Ohio, October 20.

Frank Joseph Sykora, M.D., Brainerd, Minn., to Miss Adelaide Stoll of Little Falls, Minn., October 27.

Frank Burton Stephenson, M.D., Indiana, Pa., to Miss Elizabeth H. Wood of Philadelphia, October 28.

Howard Albert Hamilton, M.D., Drynob, Mo., to Miss Lois Brown of Springfield, Mo., October 11.

Hugh Owen Williams, M.D., Balaton, Minn., to Miss Ada E. Chrysler of Granville, Ohio, October 15.

John Graham Davis, M.D., Lincoln, Neb., to Miss Lenore Barber of West Pittston, Pa., October 22.

Karl Brooks Sturgis, M.D., Augusta, Me., to Miss Alice W. Fiske of Rockland, Me., October 28.

Firmadge King Nichols, M.D., to Miss Helen Marienne Spangler, both of Baltimore, October 24.

Morris Braude, M.D., Chicago, to Miss Dorothy Rosenstein of Mishawaka, Ind., recently.

William Frederick Becker, M.D., to Mrs. Becker, both of Chicago, October 27.

Deaths

Joseph Scribner Gibb, M.D. University of Pennsylvania, Philadelphia, 1880; a Fellow of the American Medical Association and College of Physicians of Philadelphia; from 1882 to 1892 outdoor physician to the Philadelphia Department of Charities and Corrections, and surgeon to the police department; from 1881 to 1884 in charge of the nose, throat and ear department of the Northern Dispensary; since 1893 professor and emeritus professor of diseases of the throat and nose of the Philadelphia Polyclinic; laryngologist to the Episcopal Hospital; who was seized with a cerebral hemorrhage at the Overbrook Golf Club, November 6; died at his home in Philadelphia, November 7, aged 55.

James Bartlett Brewster, M.D. Bellevue Hospital Medical College, 1866; a member of the Massachusetts Medical Society and formerly state medical examiner; surgeon of the Forty-Fourth Massachusetts Volunteer Infantry and assistant surgeon of the Second Division, Ninth Army Corps, during the Civil War, and surgeon-general of the Department of Massachusetts of the Grand Army of the Republic; at one time acting assistant surgeon in the United States Public Health and Marine Hospital Service; died at his home in Phillips, Mass., November 7, aged 73.

Osmon Beverly Campbell, M.D. Northwestern Medical College, St. Joseph, Mo., 1881; Jefferson Medical College, 1884; a Fellow of the American Medical Association; formerly president of the Tri-State Medical Society of Iowa, Illinois and Missouri; Western Gynecological and Surgical Association and Medical Society of the Missouri Valley; widely known as a surgeon of St. Joseph, Mo.; dean of the Central Medical College and professor of gynecology and abdominal surgery; died in his home in St. Joseph, November 11, after an illness of two years, aged 54.

George Livingston Peabody, M.D. College of Physicians and Surgeons in the City of New York, 1873; later professor of materia medica and therapeutics in his Alma Mater and from 1884 to 1887 a trustee and member of the council of Columbia University; formerly attending physician to New York Hospital, and consulting physician to the Roosevelt Hospital, New York City; died at his home in Newport, R. I., October 30, from heart disease, aged 64.

George Stanley Lynde, M.D. College of Physicians and Surgeons in the City of New York, 1866; a member of the Medical Society of the State of New York, New York Academy of Medicine and New York Pathological Society; for more than twenty-five years a member of the New York Board of Health and from 1907 to 1912 chief diagnostician of the board; died in the New York Hospital, November 5, after a surgical operation, aged 53.

Walter D. Green, M.D. University of Pennsylvania, Philadelphia, 1886; resident physician at the Presbyterian and Pennsylvania hospitals until 1892; then for two years medical inspector of the Philadelphia Bureau of Health, and in 1894 port physician of Philadelphia; aged 53; while a patient at a sanatorium in Bellemeda, N. J., October 25, wandered to the tracks of the Philadelphia and Reading Railroad and was struck and killed by a train.

Sarah R. Munro, M.D. Woman's Medical College of Pennsylvania, Philadelphia, 1872; a member of the Wisconsin State Medical Society; for many years a practitioner of Milwaukee; visiting physician to the House of Mercy and a director of the House and Home Farm School for Boys at Dousman, Wis.; died at her home in Milwaukee, November 3, aged 74.

Herman Reeve Ainsworth, M.D. New York University, New York City, 1866; a member of the Medical Society of the State of New York and its vice-president from 1905 to 1907; president of the Steuben County Medical Society in 1874; a member of the American Association for the Advancement of Science; died at his home in Addison, N. Y., September 3, aged 73.

Henry Northam Bryan, M.D. Jefferson Medical College, 1884; Medico-Chirurgical College of Philadelphia, 1895; a Fellow of the American Medical Association, and a member of the Medical Club of Philadelphia; for eleven years head of the surgical staff of the Medico-Chirurgical Hospital; died at his home in Philadelphia, November 2, aged 61.

John Ernest Gould, M.D. Western Pennsylvania Medical College, Pittsburgh, 1895; a member of the Medical Society of the State of Pennsylvania; died at his home in Pittsburgh, October 28, aged 44.

Albert Gallatin Jones, M.D. St. Louis Medical College, 1855; Chicago Medical College, 1860; for twenty-five years a practitioner of Milton, Ill., since that time a farmer near Kingston, Mo., and for the last four years a resident of Hamilton, Mo., and president of the Farmers' and Merchants' Bank in that city; died at his home, August 10, from arteriosclerosis, aged 81.

James Taylor Woodburn, M.D. Louisville (Ky.) Medical College, 1876; a member of the Kentucky State Medical Association; for twenty years a member of the board of health of Muhlenberg County, Ky.; and from 1910 to 1914 mayor of Central City, Ky.; died at his home in Central City, November 2, from nephritis, aged 64.

Ira F. Hart, M.D. Jefferson Medical College, 1852; formerly a member of the American Medical Association; a surgeon of Volunteers throughout the Civil War; editor of the *Saturday Evening Review* and of the *Elmira Advertiser* for many years; died at his home in Elmira, N. Y., October 30, from senile debility, aged 84.

Leo O. Egginton, M.D. Western Pennsylvania Medical College, Pittsburgh, 1907; formerly pathologist to the Independence (Iowa) State Hospital; died at his home in Juneau, Alaska, October 21, from appendicitis, aged 32.

James Jerome Hassett, M.D. Rush Medical College, Chicago, 1890; a member of the Illinois State Medical Society and of the Illinois State Board of Health; died at his home in McLeansboro, Ill., October 28.

Amos Jesse Newell, M.D. Rush Medical College, 1892; formerly a member of the American Medical Association; of West Pullman, Chicago; died in the Meadville, Pa., City Hospital, about October 21, aged 59.

Malcolm Duane Lewis, M.D. University of Missouri, Columbia, 1875; a member of the Missouri State Medical Association; died in his office in Columbia, Mo., October 22, from cerebral hemorrhage, aged 68.

James W. Money, M.D. University of Louisville, Ky., 1874; a pioneer practitioner of Central Kansas; died at his home in Herington, Kan., about October 14, from cerebral hemorrhage, aged 65.

William Ivan Senkler, M.D. University of Toronto, Ont., 1891; L.R.C.P. and L.R.C.S. Edinburgh and L.F.P.S. Glasgow, 1892; died at his home in Vancouver, B. C., July 29, aged 46.

William Henry Downey, M.D. Harvard Medical School, Boston, 1898; a member of the Massachusetts Medical Society; died at his home in Taunton, Mass., October 1, aged 49.

Blythe Jackson Callantine, M.D. Rush Medical College, 1913; after his graduation an intern in St. Luke's Hospital, Chicago; died at his home in Clifton, Ariz., October 28, aged 29.

Ely Bradley, M.D. University of Pennsylvania, Philadelphia, 1857; a member of the Medical Association of the State of Alabama; died recently at his home in Belleville, Ala., aged 78.

J. Franklin Barnes, M.D. Bellevue Hospital Medical College, 1875; a member of the Schuyler County (N. Y.) Medical Society; died at his home in Watkins, N. Y., about October 29.

Edward F. Gifford, M.D. Cleveland Medical College, 1893; of Erie, Pa.; died in the Hamot Hospital in that city, October 23, from septicemia due to an operation wound, aged 48.

Joseph Foster Dorsey, M.D. Starling Medical College, Columbus, Ohio, 1870; died at his home in Dresden, Ohio, October 22, from cerebral hemorrhage, aged 79.

William Garrett Stone, M.D. Vanderbilt University, Nashville, Tenn., 1879; formerly of Columbus, Ohio; died at Greenwood, Miss., about October 15, aged 59.

Adam Lindsey Wright Webb, M.D. University of Toronto, Ont., 1903; of Brighton, Ont.; died September 11, from accidental poisoning by toadstools, aged 35.

Daniel J. Reeder, M.D. Georgia College of Eclectic Medicine and Surgery, Atlanta, Ga., 1882; died at his home in Atlanta, October 24, aged 58.

Archibald C. Leslie, M.D. McGill University, Montreal 1890; of Kathryn, N. Dak.; died at McVille, N. Dak., about October 23, aged 54.

James Weir Renwick, M.D. University of Toronto, Ont., 1875; died at his home in Courtland, Ont., July 3, aged 67.

John L. Fitzporter, M.D. Washington University, St. Louis, 1871; died at his home in St. Louis, October 23.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

ARTICLES REFUSED RECOGNITION

(*Continued from page 1778*)

Reports of the Council on Pharmacy and Chemistry

[The abstracts that follow deal with articles which, having been refused recognition, were not deemed of sufficient importance to require lengthy reports. A previous instalment of abstracts appeared in THE JOURNAL, Nov. 14, 1914.]

Lysoform and Lysoform Crude

Lysoform, made by the Lysoform Gesellschaft, Berlin, Germany, according to the information submitted, is a watery solution of potash-soap containing 6-7 per cent. of formaldehyde. Crude Lysoform is said to contain 10 per cent. of formaldehyde and to be made from cheaper oils, such as linseed oil.

Examination showed that the name "Lysoform" was blown in the glass and that a circular was wrapped around the trade package which recommended its use in conditions such as the following: "bites," "furunculosis," "softening abscesses," "insect-bites," "chronic and acute catarrhs" and "catarrh in the throat." The name was blown in the glass of the sample package of Crude Lysoform and the following claims appeared on the label:

> "Eingeführt in den Heilstätten zur Bekämpfung der Tuberkulose."[1]
>
> "Bestes Mittel zur Verhinderung und Beseitigung von Tierseuchen aller Art bei Pferden, Rindvieh, Schweinen, Schafen, Katzen, Hunden u. Geflügel."[2]

The referee recommended that these objections, constituting conflicts with the rules of the Council, be brought to the attention of the Lysoform Gesellschaft, and also that evidence be requested for the assertion made that soap is efficient as a means of removing the local effects of formaldehyde, and for Lysoform's asserted "thorough efficiency as a powerful disinfectant." The referee pointed out that the papers of Pfuhl (*Hygienic Review*, 1902-3), Symanski (*Jour. Hyg. and Infect. Dis.*, 1901-3) and Seydewitz (*Centralbl. f. Bacteriol.*, 1902-3) used in the advertising circular for Lysoform really show that Lysoform possesses only a moderate germicidal action and that the claim that Lysoform is a powerful disinfectant is misleading, especially in view of the work of Seydewitz (1902) who states that it requires a longer time of action than other disinfecting agents.

The referee's report having been adopted by the Council it was sent to the manufacturer Dec. 19, 1913. No action having been taken to remove the reported conflicts with the rules or to present evidence to substantiate the claims made, the Council voted that Lysoform and Crude Lysoform be refused recognition.

Phecolates, Phecolax, Phecozymes and Phecotones

Phecolates, Phecolax, Phecozymes and Phecotones were submitted by F. Waldo Whitney, New York, with "literature" indicating that they are designed to form parts of a system of treatment founded on the theory of autotoxemia, which they are supposed to prevent by their action on the functions of the intestinal canal. The different preparations consist in the main of mixtures of well-known remedies. The basic preparation is Phecolates, which contains bile salts in combination with phenyl salicylates and benzo-naphthol in about one-eighth the regular doses and hence not likely to be of any real service. Since the proportions of these ingredients ought to be regulated by the physician according to the needs of the individual patient, they should not be combined in fixed proportions. The name is not so framed as to indicate the principal ingredients.

Phecolax contains, in addition to the ingredients of Phecolates, phenolphthalein and cascarin, of each one-half grain.

Phecozyme is made more complex than Phecolax by the introduction of additional phenyl salicylate and of pancreatin. Phecotone contains ten ingredients.

Extravagant claims such as the following are made:

> "Our Health is governed by our bowels; Our bowels are governed by our nerves; Our nerves are governed by our digestion; our digestion is governed by Phecolates."

The Council voted to refuse recognition to Phecolates, Phecolax, Phecozymes and Phecotones as unscientific articles with objectionable names.

Serum Vaccine, Bruschettini

The Serum Vaccine, Bruschettini, sold by R. G. Berlingieri, New York, has for its aim the destruction of the tuberculous cell and the facilitation of its elimination by the natural expulsion process, it being held that this constitutes a victory in the struggle against consumption as much as obtaining the death and elimination of the specific bacillus. The description for the preparation of this "Serum Vaccine" is complicated and makes the impression that it is based on a number of unproved hypotheses.

After an examination of the evidence submitted the Committee on Serums and Vaccines recommended to the Council that further consideration be postponed until the manufacturer submit proof of the value of the preparation. The Council having agreed to the recommendation, this action was communicated to the American agent for Serum Vaccine, Bruschettini, June 14, 1913. After waiting nearly a year for evidence to substantiate the claims made for the product the Council voted that Serum Vaccine, Bruschettini, be refused recognition. This action having been communicated to the manufacturer, the information was received September, 1914, that the Serum Vaccine is now used only in slight cases.

Sherman's Non-Virulent Tubercle Vaccine

Consideration of this product of G. H. Sherman, Detroit, having been requested, the Committee on Serums and Vaccines examined the information and advertising matter submitted. It then recommended that in view of the far-reaching claims made for this preparation, for example, that "comparatively small doses of the killed organism will produce a marked immunizing response to the virulent human tubercle bacillus," that consideration be postponed, and the manufacturer be requested to submit evidence—reports of animal experimentation and case reports—to substantiate his claims. After waiting more than six months for the required evidence, the Council voted that Sherman's Non-Virulent Tubercle Vaccine be refused recognition.

White Sulphur Salts

White Sulphur Salts, put on the market by the White Sulphur Springs, Inc., White Sulphur Springs, W. Va., is said to be an effervescing salt containing sodium phosphate, magnesium sulphate, sodium sulphate, and sodium citrate with an effervescing base consisting of sodium bicarbonate, citric and tartaric acids and saccharin. It is claimed that one teaspoonful of the mixture represents "the approximate equivalent of one glass of the White Sulphur Spring Water." Comparison showed that the composition of White Sulphur Salts as claimed did not agree with the submitted analysis of White Sulphur Spring Water, the spring water containing calcium, strontium, iron, manganese, lithium, silica and alumina, which were not present in the artificial salts. Further, one teaspoonful of the manufactured sulphur salts to a glass of water would contain from 50 to 75 grains of the several salts, whereas the White Sulphur Spring Water would contain approximately 8 grains of the several salts. White Sulphur Salts being neither an artificial form nor an approximate equivalent of White Sulphur Spring Water, the Council held it not eligible for inclusion with N. N. R. or the appendix.

Unguentum Selenio Vanadic (v. Roemer)

Unguentum Selenio Vanadic (v. Roemer) is an ointment manufactured by A. von Roemer, Brooklyn, N. Y., and put on the market by Schering and Glatz, New York. It is claimed to contain 1 per cent. of selenium oxycyanid and 1 per cent. of vanadium chlorid "so prepared and incorporated into a modified lanolin base as to insure complete absorption." The preparation is recommended in the later stages of inoperable carcinoma, sarcoma, epithelioma and other malignant tumors, as a substitute for morphin and other narcotics to control pain, as a modifying (ante-operative) treatment in the middle stage of malignant cases presenting the characteristics of being inoperable, and as a prophylactic treatment of recurrences and metastases following excision of malignant tumors. It is also recommended for use in slow-healing surgical wounds, abscesses, tuberculous and mixed septic and gangrenous processes, etc., in lupus, acne, eczema, psoriasis, scabies, erythemata, adenomata, angiomata, papillomata, etc. The use of the ointment is further recommended by systemic inunction in septicemia, pneumonia, erysipelas, cerebrospinal meningitis, septic rheumatism, septic neuritis, etc. The Council voted that the preparation be not accepted for inclusion with New and Nonofficial Remedies because no evidence has been submitted that the vanadium and selenium are absorbed or that they produce any of the effects claimed.

---

[1] Introduced into sanatoriums for the treatment of tuberculosis.

[2] Best means for the prevention and suppression of epidemics among horses, cattle, swine, sheep, cats, dogs and poultry.

When the preceding report was sent to Schering and Glatz, the firm expressed surprise that evidence of the absorption of selenium and vanadium should be requested. On June 8 the firm wrote that within a few days one or more tests would be sent by which the presence of selenium and vanadium in the urine could be demonstrated. These tests were not received. So far (November, 1914) no evidence of the value of the preparation either in carcinoma or in any of the very long list of other diseases in which it is recommended has been submitted, and, the pharmacologic evidence that such a preparation would be of value in such conditions being practically nil, the Council authorized publication of this report.

(To be continued)

IODIA

Report of the Council on Pharmacy and Chemistry

The following report on Iodia was adopted by the Council and its publication authorized.

W. A. PUCKNER, Secretary.

Iodia is put on the market by Battle and Company, under the claim that it contains potassium iodid in combination with iron phosphate and vegetable "principles." It is ext. vagantly recommended for use in many and varied conditions. For instance, it is "an unexcelled altero-reconstructive," "almost a specific" in eczema and rheumatism and "a highly efficient form of iodin," which will not produce iodism!

The therapeutic effects of iodids result from a chemical transformation by which molecular iodin is set free in the tissues, thus producing a mild degree of iodism. It follows, then, that a preparation which cannot give rise to the symptoms of iodism cannot be expected to produce the therapeutic effects of the iodids. The claim that Iodia is *therapeutically* efficient without producing iodism therefore justifies suspicion, to put it mildly.

In view of the exaggerated tone of the advertising, together with the fact that a report from the Chemical Laboratory of the American Medical Association showed marked discrepancies between the formula and the *composition* of Iodia, it seemed desirable to investigate this product. The report of the laboratory, which is given below, shows conflict with Rule 1 (secrecy of composition) and with Rule 2 (false claims of standardization). A discussion of the claims made for Iodia follows the report.

LABORATORY REPORT

The composition of Iodia is given thus:

> "Formula.—Iodia is a combination of active principles obtained from the green roots of Stillingia, Helonias, Saxifraga, Menispermum and aromatics. Each *fluid drachm* also contains two and one-half grains Iod.-Potas. and one and one-half grains Phos.-Iron."

We are told that:

> "Its several ingredients are selected with *scrupulous* care, and the most exacting methods are constantly employed to insure absolute uniformity and maximum therapeutic potency."

This "formula" is an absurdity: First, the amounts of the "active principles" of the plants named are not given; second, these "principles," with the possible exception of menispermum alkaloids, have not been isolated; and, third, ferric phosphate and potassium iodid are incompatible! Incidentally, there are no methods whereby it is possible to secure "absolute uniformity" of a mixture such as Iodia is claimed to be.

Qualitative tests demonstrated the absence of iron and the absence of all but traces of phosphorus compounds (0.015 gm. phosphorus per 100 c.c.). Minute traces of alkaloids, possibly from menispermum, were found (*that* amount being about 0.004 gm. per hundred c.c. of the preparation). Therapeutically this quantity is entirely negligible. Determinations of iodid demonstrated the presence of only about 60 per cent. of the amount of potassium iodid claimed. The "formula" for Iodia is false and misleading.[1]

DANGEROUS RECOMMENDATIONS

One of the Iodia labels reads:

> "INDICATIONS.—Syphilitic, scrofulous and cutaneous diseases, dysmenorrhea, menorrhagia, leucorrhea, amenorrhea, impaired vitality, habitual abortion and general uterine debility."

Such recommendations are likely to lead to self-drugging in conditions that are not only dangerous to the individual but also a menace to the community. The preparation thus conflicts with Rule 4 of the Council. After admitting the need of efficient iodid medication in certain stages of syphilis and after exaggerating the frequence and severity of symptoms of iodism, an advertising circular entitled "Practical Therapeutics" asserts:

> "Iodia then is the preparation of iodid of potassium to be preferred whenever it requires to be administered in large doses or for prolonged periods of time . . .
>
> "Not only does the association of the iodid of potassium with the vegetable alteratives offer a measure of protection against iodism but the latter exert depurative effects on their own account . . ."

It is generally accepted that in certain stages of syphilis the only hope of success lies in efficient iodin medication. The exploiters of Iodia state that a dose of the nostrum contains 2½ grains of potassium iodid; actually it contains only 1½ grains. To urge physicians and the public to depend on this product for efficient iodid medication constitutes an unwarranted therapeutic exaggeration (Rule 6) which approaches criminality. The reason Iodia does not produce iodism is that, in the doses recommended, the iodin action is extremely feeble.

Likening the human body to a factory and discussing the "break downs" which are likely to occur, a circular entitled "Always Trustworthy" says:

> "When administered in proper dosage, Iodia stimulates organic functions, promotes the elimination of waste products, and re-establishes metabolic activity. It increases the solvent properties of the blood, and arrests abnormal tissue metamorphosis. In other words, it lends material assistance to weakened cells and curbs those unduly active. Iodia, obviously, has a wide range of indications. It has been most generally and successfully employed, however, in Syphilitic, Scrofulous and Cutaneous Diseases, Rheumatic and Gouty Ailments, Dysmenorrhea, Menorrhagia, Leucorrhea, Amenorrhea, Impaired Vitality, Habitual Abortion and General Uterine Debility, and wherever a reliable altero-reconstructive is required."

These recommendations show that in addition to the objections already given, this nostrum is an *unscientific shotgun mixture*. This brings it in conflict with Rule 10 (unscientific articles inimical to the medical profession and the public).

It is recommended that Iodia be refused recognition.

Correspondence

Priority in Discovery of Drainage Apparatus

To the Editor:—In THE JOURNAL, Nov. 7, 1914, p. 1667, I observe an article by Dr. Lucian W. Smith of Lafayette, Ind., on "Suprapubic Prostatectomy with Special Reference to Drainage."

As to the drainage apparatus which is the point of the article: A reference to the *Annals of Surgery* for April, 1896, also for October, 1899, will show the same thing described *in* full as my invention. Or rather, I credited the principle—though far less simply carried out—to Dr. Snow, a dentist of Buffalo, who first employed it many years *earlier;* and ever since then dentists everywhere have made use of it to empty of saliva the sublingual space during dental operations.

In the *Annals* articles quoted my device will be found also employed for estimating the amount of urine passed and for washing out the bladder.

---

[1] It should be noted that the discrepancies here reported between the actual and the claimed composition of Iodia were pointed out more than thirty years ago by A. B. Lyons (Detroit *Lancet,* October, 1882, vi, 157-8), who found that *Iodia* was deficient in iodid content and practically free from iron.

To quote from only one author, where if desired several could be cited, on page 416 of Dr. G. E. Brewer's work on surgery the same device is illustrated for his article on suprapubic cystotomy, and is credited to me

I have no doubt that Dr. Smith thought of this quite independently, and is simply unfortunate in that another writer happened to be born earlier. Indeed, so simple and at the same time practical and efficient is this mode of draining any cavity from its top instead of its bottom that the wonder is that this idea is not reborn yearly!

Let me remark, in conclusion, that I make the necessary loop in the exit tube from the reservoir by tying a simple knot in this tube. This makes it self-retaining. And the smaller the loop and the nearer down toward the floor it is placed, the better does the apparatus work. The Y-connection entering from the tube to the bladder should join as closely above the loop aforesaid as it conveniently can.

A valve at the lower end of the exit tube is not necessary. Any little weight, such as a door-key or a pebble fastened to the tube-end, holding it under water, is alone needed.

Robert H. M. Dawbarn, M.D., New York.

Alphonso Corti Correspondence

To the Editor:—Apropos of your interesting account of Marquis Alphonso Corti (The Journal, Nov. 7, 1914, p. 1676), I enclose a letter on file in the correspondence of the late Prof. Joseph Leidy which may interest your readers. Some years ago on a visit to Milan and Turin I got in touch with members of his family now living in Milan. I had hoped to obtain Professor Leidy's replies to the Corti correspondence. Though I understand some of his correspondence was preserved, there was unfortunately nothing of scientific interest.

Joseph Leidy, M.D., Philadelphia.

Turin, August 1, 1852.

My Dear Sir:—Having seen from your interesting observations on the microscopic structure of cartilage that you occupy yourself with microscopic anatomy—I am not aware of any one else doing so in America, I avail myself of the very kind offer of Mrs. White, returning home from here, to send you a copy of the first part of my research on the organ of hearing of mammalia. I was obliged to make my studies principally on domestic animals because it is very difficult in Europe to obtain wild animals, which will be easier for you in America. As you will see that my discoveries on that subject are not without interest to physiology—I wish I might induce you to repeat my observations and extend them over a larger number of wild animals.

I should be very happy to keep up a scientific correspondence with you on physiology and microscopic anatomy. I am at the beginning of my scientific career, and I will direct all my endeavors to the physiological anatomy of animals.

My already long letter will perhaps have annoyed you. Excuse me for it; but science and more than any other the study of nature brings men near to each other and will probably later bring me on a visit to your native country, the most wonderful both for its political institutions and for its natural productions.

You will greatly oblige me with an answer [and], believe me, My dear sir,

Your obedient servant,

Alphonso Corti,
at Turin, Kingdom of Sardinia.

I enclose two short German articles of mine and two Italian ones of my friend Dr. d. Filippi, Professor of Zoology and Director of the Zool. Mus. here.

To Dr. Joseph Leidy,
Philadelphia Academy of Sciences.

The Neglect of Vital Statistics.—If the unborn historian of hygiene in the twentieth century shall find one anomaly more curious than any other, it will be that the twentieth century, opening with prodigious resources immediately available, ran a third or half its course before these resources became so standardized that each unit of power might be accounted for in a definite scheme of vital statistics.—J. S. Fulton.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

SEWER AND WATER PIPES IN THE SAME TRENCH

To the Editor:—In a town where it is exceedingly expensive to dig ditches owing to the rocky formation, would it be advisable or objectionable to lay the sewer pipe and the water pipe in the same ditch?

Charles W. Sult, M.D., Flagstaff, Ariz.

Answer.—The proximity of sewer pipes and water pipes is not altogether free from objection, but if the water pressure is constant and the sewer pipe is laid with tight joints there will probably be little risk under ordinary conditions. Careful construction should obviously be insisted on to reduce so far as possible the likelihood of an "accident."

ARTICLES ON ABDERHALDEN'S METHOD

To the Editor:—Can you refer me to any articles treating of the diagnosis of disease by means of Abderhalden's serum reaction?

J. D. Blything, M.D., Bettendorf, Iowa.

Answer.—A list of articles on the serodiagnosis of pregnancy was published in The Journal, Oct. 12, 1912. In the issue of September 6, p. 788, the technic was described and a full list of references was given; Dec. 6, 1913, p. 2087, a list of references to articles appears; and May 16, 1914, p. 1576, a list of references to the use of the test in psychiatry, together with a description of the technic, was published.

CEDAR POISONING—SOFTENING HARD WATER

To the Editor:—1. Lumber mill men frequently consult me for "cedar poisoning" on their hands. Is there such an ailment? If so, please give etiology, treatment and differential diagnosis from eczema and syphilis. I was of the impression that oil of cedar was soothing and mildly antiseptic.

2. Give a method of rendering hard water soft other than by boiling. This question was asked in a medical examination. The inhabitants of Kansas let the water freeze and then melt the ice. The result is soft water. Will you please explain why this is true? L. H.

Answer.—1. There are a large number of substances which produce irritation of the skin known as dermatitis venenata. The lists of these substances given in the works on dermatology are not complete but they do not include cedar. The diagnosis of such an affection would be most easily made by noting the recovery on removal of the supposed cause and the recurrence on renewed exposure. The diagnosis of eczema would be made by comparing the characters of that disease, which would probably persist after the cedar oil was removed.

2. Hard water can be softened by mixing it with a definite quantity of milk of lime which converts the carbonic acid into calcium carbonate and causes the precipitation of the calcium carbonate originally present in the water. When water freezes, the salts present in it are left behind so that the ice is very nearly pure water.

NARCOPHIN

To the Editor:—Can you give me any data concerning Narcophin advised by Prof. Krönig as an anesthetic in obstetrics? I understand it is a proprietary double salt of morphin and narcotin but have no record of its percentage composition.

C. E. Dakin, M.D., Mason City, Iowa.

Answer.—The manufacturers state that Narcophin is a double salt consisting of morphin meconate and narcotin meconate in molecular proportions, containing about 30 per cent. of morphin alkaloid. They claim that it is a scientific substitute for opium and that it has advantages over morphin; specifically that it is much less liable to produce respiratory disturbance or nausea. Examination made in the A. M. A. Chemical Laboratory essentially verified the claims made in regard to the composition of Narcophin (*Reports of the A. M. A. Chemical Laboratory,* 1913, vi, 92). The Council on Pharmacy and Chemistry, however, was unable to accept the therapeutic claims made for the preparation and voted not to accept it for inclusion in New and Nonofficial Remedies.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Alabama: Montgomery, Jan. 5, 1915. Chairman, Dr. W. H. Sanders, Montgomery.
California: Los Angeles, December 8. Sec., Dr. Charles B. Pinkham, 727 Butler Bldg., San Francisco.
Delaware: Dover and Wilmington, December 8-10. Sec., Dr. H. W. Briggs, 1026 Jackson St., Wilmington.
Florida: Palatka, December 2-3. Sec., Dr. E. W. Warren, 102 Front St., Palatka.
Kentucky: Louisville, December 16-18. Sec., Dr. A. T. McCormack, Bowling Green.
Maryland: Baltimore, December 8. Sec., Dr. J. McP. Scott, 137 W. Washington St., Hagerstown. Homeopathic, Baltimore, December 15-16. Sec., Dr. O. N. Duvall, 1817 N. Fulton, Baltimore.
Missouri: St. Louis, December 14-16. Sec., Dr. J. A. B. Adcock, State House, Jefferson City.
New Hampshire: Concord, December 29-30. Regent, Mr. H. C. Morrison, Concord.
Ohio: Columbus, December 8-10. Sec., Dr. George H. Matson.
Pennsylvania: Philadelphia, December 1-3. Sec., Dr. N. C. Schaeffer, Harrisburg.
Virginia: Richmond, December 15-18. Sec., Dr. J. N. Barney, Fredericksburg.

Higher Preliminary Requirements in Louisiana

A letter from Dr. E. L. Leckert, secretary of the Louisiana State Board of Medical Examiners, states that at the meeting of that board held October 29, a resolution was adopted that all students matriculating on and after June 1, 1915, in addition to a standard four-year high-school education, must present evidence of the successful completion, at an approved college or university, of one full year of work in biology, physics, chemistry and a modern language. This will apply to all applicants seeking licenses in Louisiana who graduate in 1919 and thereafter. This is the twenty-third state which has adopted the requirement of one or more years of collegiate work as the minimum standard of preliminary education.

Delaware Regular and Homeopathic Report

Dr. H. W. Briggs, secretary of the Medical Council of Delaware, reports the written examination held at Dover and Wilmington, July 16-18, 1914. The total number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 11, all of whom passed. Three candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Baltimore Medical College	(1913)	80.4, 83
University of Maryland	(1911)	82.4
New York Homeo. Med. Coll. and Flower Hosp.	(1913)	91.5
Hahnemann Medical College and Hosp., Philadelphia	(1914)	92.4
Jefferson Medical College	(1914)	84.1, 87.7
Medico-Chirurgical College of Philadelphia	(1914)	81.4, 81.5, 87.7
University of Pennsylvania	(1914)	87.1

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
George Washington University	(1906)	Maryland
Medico-Chirurgical College of Philadelphia	(1912)	Penna.
University of Pennsylvania	(1907)	New Jersey

Arkansas Eclectic May Report

Dr. C. E. Laws, secretary of the Arkansas Eclectic Medical Board, reports the oral and written examination held at Little Rock, May 12-13, 1914. The total number of subjects examined in was 12; total number of questions asked, 120; percentage required to pass, 75. The total number of candidates examined was 16, all of whom passed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Georgia College of Eclectic Medicine and Surgery	(1914)	93.8
American Medical College	(1912)	82.2
Eclectic Medical University, Kansas City	(1901) (1914)	83.8 75, 76.2, 77.7, 79.1, 80.2, 82, 84, 85, 86.6.
Eclectic Medical College, Cincinnati	(1870) (1881) (1906) (1912)	82.8 87.2 85 83.

Book Notices

Die Entstehung und Behandlung der Karzinome. Von Hofrat Dr. A. Theilhaber. Paper. Price, 8.20 marks. Pp., 182, with 17 illustrations. Berlin: S. Karger, 1914.

In the opening paragraph the author says that the statement commonly made that practically nothing is known concerning the cause of carcinoma is too pessimistic, and he declares that more is known to-day about the cause of carcinoma than is known about the cause of the majority of other diseases. He then takes up the causes of carcinoma under two headings: (1) local and (2) humoral. Under the first he mentions the usual headings: local irritation, chronic inflammation, trauma, scars, parasites (non-specific), etc., but brings out nothing new. Under the second are mentioned the influence of race and of social position, heredity, character of the food and of the soil, psychic excitement or depression, the structure and function of the internal organs, etc. After reading all the author has to say concerning the numerous causes of carcinoma one cannot fail to be impressed with the fact that the evidence in favor of each and all of them is insufficient. Under treatment considerable space is devoted to the use of the Roentgen ray. The author thinks, however, that the results are not very encouraging except in the cutaneous varieties. Concerning the use of the Roentgen rays after operation for the purpose of preventing a recurrence, the author says: "By intensive ray treatment the blood-forming organs are seriously damaged. The cells of the bone-marrow, the spleen, and the lymphatic tissues react strongly to the Roentgen and radium rays with nuclear destruction. On account of the great importance which the blood-forming organs possess when in good function as a prophylactic against carcinoma it is not probable that by the use of the rays alone the percentage of recurrences is materially reduced. Experience with Roentgen carcinoma has shown that by the too frequent use of the rays the disposition to carcinoma may be even increased." Much the same views are expressed about radium and radio-active substances. The author says: "A pronounced elective effect of radium on the carcinoma cells is not present. Simply the carcinoma cells are more sensitive and react sooner than the normal cells, but the normal tissues do not remain unharmed."

Attention is called to the fact that destructive changes may take place in the healthy tissues which at first are not apparent and that in a number of cases extensive sloughing of the bladder and rectal walls has taken place months after the use of radium in carcinoma of the uterus, and that in carcinoma of the rectum extensive strictures have occurred without the carcinoma being healed. According to the author radium has not given much better results than Roentgen rays as a rule, and in many cases the Roentgen rays are to be preferred. Other methods of treatment discussed are diathermia, fulguration, chemotherapy, the injection of tumor extracts, autotherapy, and the injection of organ extracts. The author thinks he has seen some benefit from the use of diathermia and the injection of organ extracts, and recommends this treatment as a routine after operation in order to prevent recurrence. The work is another evidence of the great effort that is being made at the present time to solve the problem of cancer.

The Life and Letters of Nathan Smith, M.B., M.D. By Emily A. Smith. With an Introduction by William H. Welch, M.D., LL.D. Cloth. Price, $2.25. Pp., 185, with illustrations. New Haven: Yale University Press, 1914.

Nathan Smith was one of the makers of the history of medicine in New England. Not only this, but he was one of the most important characters in American medicine during the first three decades of the last century. Hence anything that contains facts regarding him or his work naturally must be of interest to medical men.

A good portion of this book is devoted to his letters to his pupil and friend, Dr. George C. Shattuck. These are especially interesting and enlightening, not only regarding Dr. Nathan Smith and his work, but also concerning conditions that prevailed at the time. Dr. Shattuck seems to have been a useful friend, if we may judge from the correspondence: "I wish also," Dr. Smith writes from Hanover, Sept. 15, 1807, "that you would apply to Mr. Dunn or Mr. Maynard, whom you think best, and procure of them on my account several things, viz.: one dozen oil flasks and one pound each of the following: nitric acid, muriatic acid and sulphuric acid. . . . I wish also, that if they can be obtained in Boston, that you would procure for me some earthen and glass retorts." And this from another letter to Dr. Shattuck: "I am continually troubling you about many things. I wish now that you would be so kind as to procure for me two tin reflectors and a tin canister, which you will find described in Henry's Chemistry, in his chapter on Caloric. If you can find a tinman who will make them for you, and you will transmit them to me by Mr. Williams, or Mr. E. Woodward; it would oblige me very much. I shall soon be able to transmit to you the means of paying for these things." In another letter, we read: "If you have a man in Boston who makes thermometers," etc. These are samples from his letters to Dr. Shattuck and they show the "practical" friendship that existed between these two historic medical characters. But, more important, they give us a glimpse of Dr. Smith's scientific interests and activities.

Dr. Smith is best known in connection with his work in medical education. He was the founder of the medical school of Dartmouth College and for some time the whole faculty. When this college was well started he was called to the new medical school at Yale, as "professor of theory and practice of physics, surgery and obstetrics"—a position which he held until his death. Meanwhile, another medical school was started and secured his services. This was at Bowdoin, in the new state of Maine. He was professor of theory and practice of medicine of Bowdoin for five years. Here his lectures were delivered in the summer and did not conflict with his work at New Haven. The University of Vermont started its medical department, the leading spirit in this enterprise being Dr. N. R. Smith, son of Dr. Nathan Smith. "While still faithfully discharging his duties at Yale and at Bowdoin, Dr. Nathan Smith visited the Burlington School and not only delivered courses of lectures there, but by constant correspondence with his son gave it the benefit of his wisdom and experience, thus as the colleague of his son in the enterprise aiding in the establishment of a fourth medical school in New England."

While instrumental in starting four medical schools, he was not a believer in multiplicity, for he says in one of his Shattuck letters, "I think the four schools which I have been concerned in bringing forward, in addition to Howard, will be as much as New England will bear." And then farther on he adds—and if he were living to-day it is quite likely he would make the same statement—"Every state should have one medical school and no more."

Those who are interested in the medical history of the United States will find this book not only profitable reading, but full of some interesting historical data.

Recreations of a Physician. By A. Stuart M. Chisholm. Cloth. Price, $2. Pp. 328. New York: G. P. Putnam's Sons, 1914.

This book contains ten essays on various subjects. Five—"Banquo," "The Symbolism of Names," "Royal Authors," "On Some Translations of Horace," and "The Picaro in Fiction"—are literary and historical, rather than medical. They make not only interesting, but also instructive reading for any one who appreciates good things. The chapters of special interest to physicians are: "Specialization," "Physicians as Men of Letters," "The Inherited Spirit of Medicine," "Some Features of the Science of Medicine in the Seventeenth Century," and "On the Prevention of Disease." They are all full of information. The chapter on the prevention of disease is a historical account of the development of quarantine, and of inoculation and vaccination against small-pox; also an account of the plague visitations, of the origin and development of the science of bacteriology, of the discovery of the transmission of yellow fever, etc. This chapter alone is worth the price of the book. The one on physicians as men of letters is a revelation. It shows that medical men have influenced literature much more than most of us imagine, and that more noted men of letters were disciples of Æsculapius than is generally understood.

These essays reveal their author as a physician of wide reading, who has been industrious in his recreation. Each of the essays is well and interestingly written, and, more important, is instructive.

The American Encyclopedia and Dictionary of Ophthalmology. Edited by Casey A. Wood, M.D., C.M., D.C.L., Professor of Ophthalmology, College of Medicine, University of Illinois. Volume III. Cataract in Diabetes to Cocain Carbolate. Cloth. Price, $6. Chicago: Cleveland Press, 1914.

Chief topics in this volume are cataract, ocular relations of neighboring cavities and choked disk. Each of these important subjects is treated in a full and thorough manner, the first occupying 269 pages, giving an indication of the monumental character of the work. The pace set in former volumes is well kept, there being the usual defects and excellences of style and quality incident to varied authorship of the different articles. As a minor defect might be mentioned the use in legends of such expressions as "Author's irrigator," etc. It would be much better to give the irrigator the name of the author of the article, avoiding the necessity of looking up the author's initials at the end of the article and then referring to the authors' key in the beginning of the volume. To the editor and his collaborators are due congratulations on the rapid progress of the work.

Radium Therapeutics. By N. S. Finzi, M.B., M.R.C.S., L.R.C.P., Chief Assistant in the X-Ray Department, St. Bartholomew's Hospital. Cloth. Price, $2. Pp., 112, with 25 illustrations. New York: Oxford University Press, 1913.

The author's effort in this little book has been, he says, "to place before the profession a brief and clear account of the action and (therapeutic) uses of radium and its rays." And it may be said at once that he has succeeded well in this rather difficult and altogether laudable task. He has first written very clearly of the physics of radium and of the technic of its therapeutic application, and, best of all, has given an account of what is known from histologic study of its effects on tissues; so that he puts its therapeutics uses on a rational foundation. His summaries of its value in various diseases are brief but explicit; and he is blessed with experience and a fine conservatism, so that his judgment on its value is sane and not overenthusiastic. The book is an excellent one in a difficult field.

Manual of Surgery. By Alexis Thomson, Professor of Surgery, University of Edinburgh, and Alexander Miles, Surgeon Edinburgh Royal Infirmary. Cloth. Second Edition. Volume III—Operative Surgery. Price, $3.50. Pp., 620, with 255 illustrations. New York: Oxford University Press, 1913.

The convenient size, large print, the many good illustrations and a splendid text combine to make this book a welcome addition to the surgeon's library. It is written concisely but clearly, and the field is covered fairly well. The work of American surgeons receives the attention it deserves, although so well-known and popular an operation as the Andrews imbrication in connection with inguinal hernia is not mentioned. The usual division of the subjects treated is made. The closing chapter on anesthesia is good. It is short but gives much valuable information. Whether or not it should have a place in a book of this kind is open to question.

Infant-Feeding. By Clifford G. Grulee, A.M., M.D., Assistant Professor of Pediatrics at Rush Medical College. Second Edition. Cloth. Price, $3. Pp., 314, with 29 illustrations. Philadelphia: W. B. Saunders Company, 1914.

The author in revising his book has made no radical changes, but has endeavored to add the substance of the accumulated scientific data of the two years since the original publication. It is a good practical presentation of the theories and classification of Finkelstein, of Meyer, of Czerny and of Keller on the infant-feeding problem. Supplemented by observations from the author's own experience.

Miscellany

Oil of Chenopodium as a Substitute for Thymol in Hookworm Disease

Thymol, largely used in the treatment of hookworm, is one of the many drugs which has increased in price as a result of the present European war. In a recent article Motter (*Pub. Health Rep.*, Oct. 2, 1914, p. 2651) discusses the substitution for thymol of an American drug, oil of chenopodium. As indicated by its popular name, wormseed oil, this drug has long had a reputation as a vermifuge. The plant from which it is obtained grows in waste places practically all over the United States. The oil is produced chiefly in Maryland, and the seed comes to a considerable extent from Maryland and Florida. It is said that oils distilled by different processes and from seed grown in different localities vary in efficacy. The value of the drug in the treatment of roundworms is recognized, and Schüffner and Vervoort (*München. med. Wchnschr.*, 1913, lx, 129) found it superior to thymol, naphthol or eucalyptus oil in the treatment of hookworm. Oil of chenopodium paralyzes but does not kill the parasite, which must be removed by free purgation. Unlike aspidium and thymol, wormseed oil can be followed by castor oil, which does not increase the toxicity. Schüffner and Vervoort gave 16 drops of wormseed oil every two hours for three doses; two hours afterward, a tablespoonful of castor oil with a teaspoonful of chloroform. Gockel gives the single dose as 8 drops for patients 6 to 8 years; 10 drops, 9 to 10 years; 12 drops, 11 to 16 years; over 16 years, 12 to 16 drops. If inordinate sleepiness, depression or other untoward symptoms occur, the chenopodium must be stopped at once, active purgation induced, and stimulation by oral or rectal administration of strong hot coffee begun.

Medical Education of An Earlier Day

The *London Magazine*, a journal of note a century ago, in one of its issues during 1825 contains a somewhat satirical "dig" at the medical education of that period. One item reads:

"There are 3,500 medical practitioners in London, 900 in Paris, and not one in Jericho. If you ask aloud in the street in New York, How do you do, doctor? not fewer than nine passengers will answer you."

Concerning medical education in the British Isles, it says:

"We understand that there is a university called the University of Edinburgh, where ragged Scotch louts spend twenty or thirty pounds, and six months, in acquiring what is called medical knowledge. Others, richer and less ragged, spend three years, and twice as many hundred pounds; a few may occupy four or five. In Glasgow, they do pretty much the same. In both, they talk what is called Latin, and pay thirty pounds at the ends of these probations, have a velvet cap put on their heads, hear a speech from a man called a principal, and become M.D.—Doctors of Physic, or Medicine, for it is not absolutely agreed which (vide Term Reports, anno 1773. Boswell v. Johnson).—At Aberdeen again, physic is studied, learnt, acquired, for thirteen pounds twelve shillings, in about half an hour; *attendance*, on account of its inconvenience, being excused. At St. Andrew's, the facility is about as great; and thus, for thirteen pounds twelve shillings, a man acquires the right of 'purgandi, seignandi, accidendi, et trucidandi, impune per totam terram.' At Oxford and Cambridge, physic is acquired with the utmost certainty and facility, just as are other things in the same places; at Paris, Leyden, Göttingen *and elsewhere*, in other modes too tedious to detail. In England, generally, a student labors for seven years in spreading plasters, tying labels on bottles and applying packthread; but, *in London*, they dig up dead bodies and carve them, walk about an hospital and pay fifty guineas a year for the privilage of guessing what a man called an apothecary means, and what becomes of the money. Added to all this, in times of war, they go to the Peninsula, hew down legs and arms, and bore holes in skulls with a center bit, or do the same thing on board of a frigate. Then a few privileged ones wear scarlet cloaks, make a Latin speech, or listen to one, once in two hundred years, and vote all the rest to be ignoramuses."

Medicolegal

Hospital Liable for Death of Delirious Patient Jumping from Window

(Wetzel vs. Omaha Maternity and General Hospital Association (Neb.), 148 N. W. R. 582)

The Supreme Court of Nebraska affirms a judgment against the defendant for $5,500 damages for the death of a patient who, while delirious, jumped from an unguarded window of his room on the third floor of the hospital, in the absence of the nurse, who said that she had not been gone five minutes, while another witness said it was nearly an hour. The defendant contended that there was no evidence of actionable negligence, particularly as the contract was to give the patient general, and not special, care, that the attending physician was selected by the patient or his friends, and that the nurse obeyed all of the physician's instructions. But the court points out that there was testimony tending to show that the patient, having typhoid fever in his own home, was taken to the hospital for better care and attention. When the hospital was called up by telephone to make arrangements for his care, it was said by whoever answered that general care was sufficient for a patient in such condition. The hospital was advised in advance that the patient had been delirious. To protect him from harm, the hospital nurse, on her own initiative, but with the subsequent approval of the physician, kept him for a time strapped to his bed. Then, though his fever remained high and his delirium continued, the straps were released by direction of the physician to permit frequent change of position, made necessary by premonitions of hypostatic pneumonia. The lower sash of the window was movable, unfastened and unprotected when he jumped out.

As law, the court holds that a hospital, incorporated and conducted for private gain, is liable in damages to patients for the negligence of its nurses and other employees. This rule of law rests on the general principle that a master is responsible for the torts or wrongful acts of a servant in the scope of his employment; and this doctrine applies to a hospital receiving for special care delirious patients, who on account of temporary conditions produce by fever or other ailments are not accountable for their own acts or conduct. A patient is generally admitted to a hospital, conducted for private gain, under an implied obligation that he shall receive such reasonable care and attention for his safety as his mental and physical condition, if known, may require. Any other rule would be a reproach to the law and to the hospital management. In the present case the evidence was sufficient to justify a finding that the patient was received under circumstances entitling him to the benefit of the principle stated. Duties which a hospital as such owes to a patient cannot be evaded by proof that the hospital nurse obeyed the instructions of the physician employed by him. Nurses necessarily have charge of delirious patients during the absence of physicians, while the responsibility of the hospital continues. Under the circumstances of this case, self-injury might well have been foreseen. It cannot be said as a matter of law that there was no proof of negligence on the part of the nurse or on the part of her employer. A nurse's absence of five minutes may amount to negligence. The question of negligence, under the circumstances here, was one of fact for the jury.

Roentgen Ray Liability—Changing Physicians—Expert Evidence

(George vs. Shannon (Kan.), 142 Pac. R. 967)

The Supreme Court of Kansas affirms a judgment against the defendant, a physician, for injury to the plaintiff in the negligent use of the Roentgen-ray machine in endeavoring to ascertain whether or not he had a stone in the kidney. The defense was that it was necessary to use the machine, that the plaintiff agreed to it, that if any injury resulted it was on account of the plaintiff's susceptibility to Roentgen-ray action, which could not in the exercise of ordinary care, caution and skill have been ascertained, and that if any burn developed as a result of the operation, it was through the plaintiff's own fault and negligence, and through his failure to follow the instructions to return to the defendant for further treatment.

The court holds that there was no error in an instruction to the jury that if the taking of such pictures in a proper and careful manner does not necessarily result in injury, then the fact that injury did result is some evidence (which may be rebutted) that proper care and skill were not exercised. Nor was there error in an instruction that "A physician is not released from liability for the burning of a patient by the use of the Roentgen ray by the fact that the patient quit the treatment of the physician after said patient was burned by the use of said Roentgen ray, and before said physician was willing that such patient should do so, or that said patient neglected to follow the instructions of the physician as to the use and care of the affected parts." The mere fact of discharging a physician or quitting his care and employing another physician by a patient who believes he has been injured by the negligence of the former physician is not in itself evidence of contributory negligence. In other words, the mere fact that a patient discharges or quits the care of his attending physician and employs another physician is not evidence of contributory negligence in an action by the patient against the former physician for negligence in the discharge of his duty to the patient. If any act of the plaintiff had been shown by the evidence to cause an aggravation of the injury, such evidence would probably have been pertinent in mitigation of damages, but the mere fact of a change of physicians did not raise the presumption that damages were increased thereby.

The defendant produced the testimony of a number of physicians, who were Roentgen-ray operators, which tended to show that a burn would not be expected by the use of the Roentgen ray with less than two or three times the amount of current actually used in this case, as shown by the testimony. On the other hand, there was evidence that the use made of the Roentgen-ray machine and current would be expected in ordinary cases to inflict the burn which the plaintiff suffered. On such conflicting evidence it was the especial province of the jury to determine the fact. This is a question of science in which the average juryman has no special knowledge to enable him to test the credibility and accuracy of testimony; still it does not follow that the mere number of witnesses on either side determines the preponderance of the evidence.

Patient Who Testifies Waives Privilege

(City of Tulsa vs. Wicker (Okla.), 141 Pac. R. 963)

The Supreme Court of Oklahoma holds that a patient, suing a third party for damages for personal injuries, testifying as to the nature and extent of her injuries, and the time and place of treatment, waives the privilege granted by the statute, and renders admissible the testimony of her physician on those subjects. In this case Mrs. Wicker sought to recover for personal injuries alleged to have been occasioned by the negligence of the city in not guarding a dangerous excavation in the streets. During the trial she offered herself as a witness and testified as to the nature and extent of her injuries, as also that she consulted a certain physician, who prescribed for her, she remaining under his care about six months, after which time she called at his office for treatment on various occasions. The city endeavored to ascertain from the physician for what, if anything, he had treated her, and offered to show that he had never at any time prescribed or treated her for an injury to her hip received at the time of the alleged injury. The court holds that it was error to exclude the testimony of the physician, after the plaintiff had voluntarily testified as she had, as it was material, and the attending physician was best qualified to testify as to the nature and extent, time and place of the treatment of the injuries.

Society Proceedings

COMING MEETINGS

American Association of Anatomists, St. Louis, Dec. 28-30.
American Physiological Society, St. Louis, Dec. 27-30.
Amer. Public Health Association, Jacksonville, Fla., Nov. 30-Dec. 5.
Medical Society of Hawaii, Honolulu, Nov. 28-30.
Society of American Bacteriologists, Philadelphia, Dec. 29-31.
Southern Surgical and Gynecological Assn., Asheville, N. C., Dec. 15-17.
Western Surgical Association, Denver, Dec. 18-19.

PHILADELPHIA COUNTY MEDICAL SOCIETY

Meeting held Oct. 28, 1914

The President, Dr. William Duffield Robinson, in the Chair

Abdominal Pain; Its Significance and Diagnostic Value

Dr. John B. Deaver: At least 90 per cent. of all diseases begin with pain or give rise to it at some time in their course. Ordinarily, pain is the result of undue stimulation of nerve fibers by mechanical, chemical or thermal agents. Such pain is objective. There is a type of pain which has no external physical basis. It is a product of disordered mental action. This is subjective pain and is illustrated in the phenomena of hysteria. Such pain belongs to the domain of the neurologist. It is a confession of ignorance to give to pain a name which has no pathologic significance. All the various "algias" should be replaced by terms conveying an understanding of the underlying processes.

The first great obstacle to the appreciation of the significance of abdominal pain has been the belief that pain in this region usually was the result of disordered function. The second great difficulty in abdominal diagnosis is the inability of the nervous system accurately to localize sensations received from visceral areas. Pain in the abdomen is per se no evidence that the lesion is in the abdomen. Abdominal pain associated with pleurisy or pneumonia, particularly in children, is probably of a reflex nature. Angina may give rise to intense epigastric pain simulating acute surgical disease of the upper abdomen. It is in the milder forms and beginnings of disease that the location of pain is of the greatest value. Of all the organs in the abdomen the stomach presents the greatest variety of symptoms and the most difficult to analyze. If general disease of the stomach is excluded, gastric symptoms should prompt a careful and systematic survey of the abdominal organs. Insignificant chronic disease of the appendix may set up pylorospasm with pain, retention, fermentation and secondary gastritis. It is of the utmost importance to investigate the right iliac fossa of every case presenting epigastric symptoms commonly referred to the stomach. The diseased gall-bladder frequently masquerades as a gastric affection.

Abdominal adhesions are a common source of pain and call for immediate surgical operation. This pain should never be treated with narcotics. At least a year should elapse before operative relief of postoperative adhesions is advised, except in the case of serious symptoms. There is too much morphin used as a routine measure after abdominal operations. When pain makes its appearance on the second or third day or later following operation, the conditions chiefly to be considered are simple distention, peritonitis and obstruction. The most important single feature in differentiation is the character of the pain, whether wave-like and intermittent, or steady and associated with tenderness. The pain of distention and obstruction is, as a rule, colicky and wave-like; that of peritonitis, more steady, diffuse and unremitting.

DISCUSSION

Dr. John B. McAlister, Harrisburg: We often are unable to interpret the language of these pains, and in spite of all our knowledge of anatomy and pathology in the abdomen, exploratory operations for diagnostic purposes will be made. I was called to see a woman who was taken suddenly with severe pain which I felt sure was characteristic of renal colic. Operation revealed a fibroid tumor with considerable colloid degeneration. The woman had been in apparently good health until that attack of pain. I could not account for the severe pain except that there may have been a twisted pedicle. Another pain in the upper abdomen which is of supreme importance is that of acute pancreatitis or hemorrhagic pancreatitis. I have seen four of these cases. In the first and second cases the diagnosis was made at the necropsy; in the third and fourth the diagnosis was confirmed at the necropsy. The patients were adults without history of previous ill health.

Dr. J. Leslie Ellenberger, Harrisburg: Pain is a signal that something is wrong. We should not expect to get rid of pain without removal of the cause, and in ascertaining the cause the utmost care is necessary. I have seen a case presenting all the typical symptoms of appendicitis on admission to the hospital and on the following morning show signs of pneumonia.

Dr. Joseph Sailer: Pain is a subjective affair, something felt by the patient, which we cannot measure; and, while experience may give us a proper estimate of the patient's manifestation of pain, we may be deceived by those who exaggerate or underestimate its degree. It is astonishing how often patients with valvular heart disease and with tuberculosis of the lungs come to the physician complaining of gastric symptoms. Acute endocarditis in the early stages may so simulate abdominal conditions that operation may seem imperative.

Dr. Wilmer Krusen: I would emphasize the necessity of a bimanual examination in all cases of appendicitis to determine whether the appendicitis is coexistent with pelvic disease or whether all the symptoms are due to salpingitis. The pain of ectopic pregnancy is of such gravity that physicians should be mindful of its possibility in cases of abdominal pain. Also to be considered are the pains associated with neoplasms. In fibroid tumors there is pain due to pressure conditions. In no condition in gynecology is pain so beneficent as in malignancy. The surgeon would welcome the fact that a woman with beginning cancer had pain.

Dr. A. C. Morgan: It is very important that we differentiate between acute and chronic pain. In a large percentage of cases acute pain constitutes a surgical condition calling for prompt action to save the patient's life. I regard the term "dyspepsia" as a very dangerous one, because this condition is not present, but the stomach is giving us warning of trouble elsewhere. The man who is content with the routine treatment of "dyspepsia" with nux vomica, etc., is careless or ignorant and is not a credit to the profession.

Dr. James Tyson: I was called yesterday to see a patient with abdominal pain, paroxysmal in character, and with a history of traumatism. The attacks of pain were of slowly increasing severity, resulting in collapse. The patient's abdomen was swollen and to my inquiry of the location of pain he replied that it was general. Passing my fingers in the region of the appendix I found evident tenderness, yet there was nothing that was distinctive. I have not yet made a diagnosis of this case.

Dr. S. Solis Cohen: I would not eliminate functional disturbance of the viscus from among those conditions giving rise to pain in the abdomen. Organic disease is often overlooked from want of careful examination, but when careful study has been made, and the evidence points to the so-called functional disturbance, then the physician is justified in carrying out medical measures. Several times in my experience I have been unable to exclude appendicitis, gall-stones or gastric ulcer without exploratory operation. A better understanding of the great sympathetic nervous system would give us more light on such cases. There is such a condition as hysteria, but ninety-nine cases out of a hundred called hysteria are something else. In such cases I would advise exploratory operation. I want to confirm the comparative frequency with which acute pancreatitis expresses itself as epigastric pain. I have known cases in which death occurred prematurely because the significance of the pain was not realized. To make a diagnosis one must not study pain or any other symptom alone, but must study his patient thoroughly.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION

Fortieth Annual Meeting, held at Cincinnati, Oct. 27-29, 1914

(Concluded from page 1787)

Certain Physical Signs Referable to the Diaphragm and Their Importance in Diagnosis

Dr. Richard Dexter, Cleveland: Conditions which involve the diaphragm may be divided into two groups: 1. Those in which the symptoms of involvement depend on the irritation of the nerves which supply the diaphragm. 2. Those cases in which the position of the diaphragm is affected. Irritations of the pleural or peritoneal coverings of the diaphragm give rise to symptoms at a distance from the structure. The paths of pain distribution conform to type of the viscerosensory reflex in the sense of Mackenzie and Head. The inspiratory contraction of the diaphragm tends to draw the subcostal angle toward the median line. Under normal conditions this contraction is not strong enough to overcome the antagonistic action of the scalene and intercostal muscles. When the position of the diaphragm is lower than normal the contraction of the muscle will be more direct, and will, therefore, equalize or overcome the action of the scalenes and intercostals. The result will be a retraction of the costal angle toward the median line during inspiration. If the diaphragm is pushed up from below the power of its contraction will be lessened with the result that the subcostal angle will depart farther from the median line than usual.

Relation of Gastro-Intestinal Tract to Joint Disturbance; Value of Eliminative Treatment

Dr. William A. Mowry, French Lick, Ind.: Derangements of the gastro-intestinal tract operate in the production of chronic affections, such as rheumatism, gout, obesity and probably diabetes. Among 244 patients suffering from joint disturbance, 59 had true gout and 93 had autotoxemic arthritis. Most of the cases were of the chronic type. The fingers and knees were affected equally in two-thirds of the cases, with toes, wrists, ankles and elbows next in order of frequency. Constipation was very frequent in these patients, a few had diarrhea, while some complained of alternating constipation and diarrhea. Only one-third gave a history of headache, usually coincident with stomach or bowel attacks. In forty-eight per cent. of the cases mucus was present in the stools, constantly or intermittently. About half of the patients complained of some form of indigestion, most frequently with eructation and regurgitations. Examination in most cases confirmed the diagnosis of gastritis, colitis, chronic appendicitis and probably cholecystitis. Immediate relief was given by internal irrigation, free purgation and diet. Salicylates were used in the autotoxemic group for the relief from pain, while fomentations and other hydrotherapeutic measures were regulated for each individual patient. Laxative waters were used; paraffin oil and castor oil were given when too large doses of a saline irritated the gastro-intestinal tracts. The results of treatment were most gratifying. Seventeen patients were relieved entirely from pain or stiffness in the joints; all but fifteen of the remaining showed marked improvement. Patients were instructed as to the importance of diet and regulation of the bowels to insure permanent benefit.

Presidential Address: The Public and the Profession

Dr. D'Orsay Hecht, Chicago: The physicians of to-day are wading up to their necks into mysteries of research. The evenings are spent in dutiful attendance at the meetings of the medical society, and the nights under an avalanche of medical journals. There is a lamentable show of personal indifference for the microscope and test-tube. The commercialized general laboratory is an outgrowth of this. Another instance of our tension is the bread and butter physician's restless pursuit of research. Aside from the genuine fascination which the creative faculty is sure to have for some men of the academic type, there comes to my mind the thought that the many amateurs in research recruited from the heterogeneous mass of clinicians are attracted to it by the glamor of the name. By it physicians are diverted from the paths of the clinic, paths quite as congenial and in respect of their talents and equipment infinitely more promising. Medical society madness, instead of manifesting itself as a phase of the theory of relaxation, presents itself as a symptom of the gospel of intensive work, which it should not. There are thoughtful persons, appreciative of the work of the profession. Then there are others who capitalize themselves as antivaccinationists and antivivisectionists. The latter especially are even now spasmodically engaged in pseudoformidable campaigns against the very types of animal experimentation that have resulted in the greatest benefactions to man.

Conservative Versus Radical Treatment of Eclampsia

Dr. J. Henry Carstens, Detroit: Pregnant women should have their blood-pressure taken frequently and also have the urine examined. If symptoms of toxemia develop, a most restrictive diet should be started and the woman placed in a position where she can have prompt medical attendance, preferably in a hospital. If convulsions occur, premature delivery should be brought about by slow process, if the case is mild. In severe attacks of convulsions, immediate delivery should be instituted by the so-called vaginal cesarean section, if the woman is about seven months' pregnant or thereabout. If the woman is at full term, and especially in a primipara, an abdominal cesarean section should be the operation of choice.

Salvarsanized Serum in the Treatment of Locomotor Ataxia, Paresis and Cerebrospinal Syphilis

Dr. William Litterer, Nashville, Tenn.: After giving ninety intraspinal injections of neosalvarsanized serum to fifteen patients over a period of ten months, I have seen in some of these cases remarkable improvement which has persisted up to the present time. With perfect aseptic and cautious doses the method is practically devoid of danger. On account of the numerous areas of poor vascularization in the brain and cord, the most rational treatment of nervous syphilis appears to be the intraspinal administration of salvarsanized serum. Whether it will entirely annihilate the spirochete or whether there may still remain inaccessible foci of infection, which will make recrudescence possible after the lapse of time, the future alone can determine.

Mortality and Morbidity of Appendicitis

Dr. F. F. Lawrence, Columbus, Ohio: The mortality is determined by: 1. The promptness of action after a correct diagnosis. 2. The period at which a correct diagnosis is made. 3. The patient, his resistance, his environment, and whether it is his first or one of many attacks. 4. The family doctor, his ability, his conscience and his courage. 5. The surgeon, his judgment, his skill, and his personal attention to detail. The morbidity depends on: 1. Delayed operations resulting in complications. 2. Abscess formation requiring prolonged drainage. 3. Inefficient drainage when drainage is required. 4. Incomplete operations. 5. Faulty technic which tends to irritate the peritoneal covering, strictures favoring adhesions, leaving the uncovered stump, disseminating infection by overlooking the physics of distention or of tension, and unnecessary trauma.

Present-Day Conception of the Treatment of Nephritis

Dr. Arthur R. Elliott, Chicago: Improvements in treatment may be summarized as a better handling of the cardiac problem, a better standard of control in diet, and improved prophylaxis. Chronic focal infection may play an important part in the etiology of chronic nephritis. As a primary measure in treatment, every case should be examined thoroughly for infective foci and these obliterated by radical treatment when found. Syphilis and chronic lead intoxication are other insidious factors that must be combated.

In the vast majority of cases of chronic nephritis, during the stage of cardiac compensation, the total function of the kidneys is well up to normal. Aided by periodic functional testing to check up the kidney condition the diet may be so regulated as to maintain general nutrition and kidney conservation on a parity. I perform fluid and salt excretion tests in every case of chronic nephritis before laying down the diet. The most important item in the treatment of chronic nephritis is the preservation of cardiac compensation. The high blood-pressure and cardiac hypertrophy of chronic nephritis constitute a compensatory mechanism enabling the kidneys to maintain adequate function. They consequently are essential to the preservation of life and should be protected by every hygienic and dietetic safeguard. High blood-pressure should not be made the object of direct therapeutic attack. Nitrites should be reserved for emergency use to combat such developments as angina, cardiac asthma, etc. The appearance of dropsy in primary chronic nephritis almost invariably signifies the advent of cardiac failure. At this stage the digitalis bodies become the mainstay of treatment and should not be withheld because the blood-pressure is high, as they act just as well or even better with a high blood-pressure as with a falling pressure.

Gall-Bladder Infections: Their Treatment From a Surgical Point of View

Dr. Louis Frank, Louisville: My operative work has been performed under gas-oxygen anesthesia and complete blocking, with preliminary drainage of the gall-bladder, and dividing the operation into two stages. After the gall-bladder has been permitted to drain for some time, and the patient's temperature has receded to normal and the jaundice has subsided, I do a secondary operation removing the obstruction from the duct. Under this plan the mortality has been materially reduced.

Anuria: Its Etiologic and Surgical Phases

Dr. Hugh Cabot, Boston: Anuria should be classified according to its pathology. There are two types, the secretory and the excretory types. Classified by clinical causes, there are three types, the neuropathic, the destructive and the obstructive types. The diagnosis of anuria is always simple. Diagnosis of the cause requires care, use of all the means at our disposal and accurate deduction. Operation must be considered in all cases not due to destruction of kidney tissue. In cases of acute nephritis operation may tide over an emergency, but is rarely indicated. In cases due to obstruction of the ureter from without, operation will relieve the obstruction and is indicated when the cause is wholly removable, as in benign tumors. Operation is always indicated in anuria due to obstruction within the ureter. If both sides are obstructed, both should be operated on at the same sitting. If one is obstructed and the other has stopped secreting from reflex or other causes, operation is indicated only on the obstructed side.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Insanity, Baltimore

October, LXXI, No. 2, pp. 233-437

1 Criticism of Psychanalysis. C. W. Burr, Philadelphia.
2 Pathology of General Paralysis. C. B. Dunlap, Ward's Island, N. Y.
3 Medical Examination of Mentally Defective Aliens: Its Scope and Limitations. L. L. Williams, Ellis Island, N. Y.
4 Applied Eugenics. S. Brown, Chicago.
5 Translation of Symptoms into Their Mechanism. C. L. Carlisle, Kings Park, N. Y.
6 Psychoses in Colored Race. M. O'Malley, Washington, D. C.
7 An Estimate of Adolf Meyer's Psychology. G. V. Hamilton, Montecito, Cal.
8 Dementia Praecox, Paraphrenia and Paranoia. G. H. Kirby, Ward's Island, N. Y.
9 *Mental Disturbances Associated with Acute Articular Rheumatism. R. H. Haskell, Ann Arbor, Mich.
10 Topographic Distribution and Functional Significance of Cortex Lesions and Anomalies in Dementia Praecox. E. E. Southard, Boston.
11 *Psychic Manifestations of Disease of Glands of Internal Secretion. E. M. Auer, Kalamazoo, Mich.

9. Mental Disturbances in Articular Rheumatism.—The exact cause or causes of mental disturbances during the course of acute articular rheumatism, Haskell states, are not clear. Many of the delirious episodes during the acute stage of the disease are undoubtedly pure fever delirium and should not be looked on in any sense as specific. There are those who, without other signs of psychopathic makeup, regularly show a delirium with only a slight rise in temperature. Such individuals may later develop an endogenous psychosis, seen not infrequently in manic-depressive patients. In the hyperpyretic cases, conveniently so-called, the increasingly high temperature is simply an expression of the extreme toxemia which is affecting the nervous mechanism of the heat regulating center as well as the brain cortex. Whether this toxemia is purely bacterial in origin is unknown. Kraepelin has utilized in the manufacture of a theory the observations that sometimes in these hyperpyretic cases all signs of joint involvement actually do disappear and suggests that the sudden resorption of this fluid floods the body with an excessive amount of some toxic substance which cannot be excreted or made innocuous fast enough to prevent damage to the cerebral cortex. In the protracted cases there are numerous additional factors. The prolonged toxemia, the altered metabolism as a result of this and the physical exhaustion from the disease, together, in many cases, with the added effects of various complications or several relapses of the polyarthritis, all serve to bring about the changes in the cerebral cortex.

The outcome in the superacute cases is imminently bad. The mortality is 82 per cent. In the acute infectious delirium the prognosis is more hopeful, but still serious. Fifty-two per cent. of this class die. In the more protracted cases of the late febrile or convalescent period the prognosis is uniformly good for recovery. The course is usually long, from several months to a year. The treatment is first that of the primary disease. Numerous reasons make it highly advisable that the patient be in a hospital and preferably one especially equipped for the treatment of acute mental conditions.

11. **Disease of Glands of Internal Secretion.**—Auer is of the opinion that in the etiology of the affective psychoses we are evidently dealing with a biologic disturbance. The glands of internal secretion physiologically act not as independent units but, on the contrary, mutually influence functional activity. The occurrence of insanity at puberty and adolescence after severe physical and mental strain and at the time of menopause, all periods when the metabolic changes of the body are intense, and the occurrence in syndromes unquestionably the result of disease of the glands of internal secretion of idiocy, imbecility, depression, mania and dementia suggest strongly that the true etiology of the affective psychoses lies in a functional disturbance of the glands of internal secretion.

American Journal of Roentgenology, Detroit

August, I, No. 10, pp. 361-397

12 Roentgen Findings in Obscure Head Lesions. W. F. Manges, Philadelphia.
13 *Treatment of Cancer by Physical Methods, with and without Surgery. A. F. Holding, New York.
14 *Roentgen Ray Studies on Ileocecal Valve and Appendix. J. T. Case, Battle Creek.

13. Abstracted in The Journal, October 10, p. 1321.

14. Abstracted in The Journal, Nov. 8, 1913, p. 1744.

Annals of Surgery, Philadelphia

November, LX, No. 5, pp. 537-664

15 *Early Diagnosis and Treatment of Sarcoma of Long Bones. W. B. Coley, New York.
16 *Experiences in Treatment of Malignant Tumors by Radium. R. Sparmann, Vienna.
17 *Ostitis Fibrosa Cystica. L. H. Landon, Philadelphia.
18 *Review of One Hundred Consecutive Operations for Goiter. C. H. Frazier, Philadelphia.
19 Chronic Cystic Mastitis. G. P. Müller, Philadelphia.
20 *Indications for and Variations in Technic of Eck Fistula. M. M. Peet, Philadelphia.
21 One Hundred and Ten Consecutive Cases of Appendicitis without Mortality. W. B. Brinsmade, Brooklyn.
22 Recent Traumatic Dislocations of Hip. C. R. Steinke, Philadelphia.
23 *Significance of Jackson Veil. D. N. Eisendrath and E. W. Schnoor, Chicago.

15. **Sarcoma of Long Bones.**—The chief requirement for the early diagnosis of sarcoma of the long bones, according to Coley, are a more careful study of all known clinical data; a larger clinical experience in the diagnosis of sarcoma of the long bones; early and repeated Roentgen-ray examinations in all cases of suspected swellings of the long bones, especially those following trauma; exploratory operation and microscopic examination of the tissue removed in selected cases, but not as a routine measure; realization of the importance of not placing implicit reliance on the negative report of the pathologist, especially when in conflict with clinical and Roentgen-ray evidence that is strongly positive.

16. **Treatment of Malignant Tumors by Radium.**—The hopes placed in radium as a new and successful means in the treatment of malignant tumors, Sparmann says, have not been realized. Moreover, the number of cases in which one might have recourse to radium therapeutics shrinks constantly as experience progresses.

17. **Ostitis Fibrosa Cystica.**—According to Landon the healing of fractures occurring at the site of these cysts is uniformly good and may result in cure of the cyst. Operative treatment, unless one can be quite sure from constant watching that the diagnosis is correct, is always justified. Although in selected cases and in the hands of experienced operators, resection with autogenous grafting has resulted favorably, curettement, crushing in of the walls and primary closure of the wound have been almost universally sufficient to procure a cure.

18. **Operations for Goiter.**—Of the 103 operations done by Frazier there were 80 thyroidectomies with no deaths. Of 3 thyroidectomies for malignant disease, there was one death, a sarcoma in a boy 11 years of age. Of 17 ligations, there were two deaths, both true exophthalmic goiters, one an acute case of six months' duration, the other a case in the terminal stage of the disease. The end results in the toxic cases were in accordance with those recorded from other clinics. Of the patients heard from, 90 per cent. had fully recovered or were greatly improved, and of the latter a number had been operated on within the last year. The completeness of cure, Frazier states, does not depend entirely on the successful removal of the gland. Two other factors must be considered: First, the care of the patients after the operation, which should, whenever possible, free the patient from physical and nervous strain for periods varying from several months to two years. The completeness of the recovery will depend on his appreciation of the need of this after-treatment and whether the circumstances permit of its enforcement. Second, the existence of chronic visceral disease at the time of the operation must be taken into account. Some of these patients are physical wrecks with organic lesions of heart, kidney and other organs, from which complete recovery is impossible.

Frazier emphasizes that the general practitioner has every right, if he so chooses, to try non-surgical means in the early stages of the disease before the myocardium or kidney or nervous system is permanently damaged. But if he fails to arrest the disease and does not advise operation in the curable stage, he should be just as severely censured as the practitioner who fails to call for surgical aid until his patient with acute appendicitis has developed peritonitis, or one with a callous ulcer of the stomach, carcinoma. The extraordinary recuperative power of patients with Graves' disease is amazing, and in most cases, sick as they are at the time of operation, they will almost uniformly be restored to perfect or reasonably good health.

20. **Technic of Eck Fistula.**—From a rather extensive use of the Eck fistula in dogs Peet considers the operation safe, entirely compatible with a normal life, and simple of execution. He prefers the modification of Carrel's technic. In cases of liver cirrhosis with ascites and in cases of thrombosis or other obstruction to the portal circulation, Peet considers the operation advisable, especially so in cases in which esophageal varices exist. In the latter condition, at least, he says, it should prove much superior to omentopexy.

23. Abstracted in The Journal, January 24, p. 324.

Boston Medical and Surgical Journal

November 5, CLXXI, No. 19, pp. 695-730

24 *Anaphylactic Skin Reactions Excited in Hay-Fever Subjects by Pollen of Various Species of Plants. J. L. Goodale, Boston.
25 Forlanini's Artificial Pneumothorax. G. M. Balboni, Boston.
26 *Asthma in Children. Its Relation to "Egg Poisoning." F. B. Talbot, Boston.
27 Out-Patient Work in Massachusetts State Hospital for Insane. A. W. Stearns, Boston.
28 Transfusion in Treatment of Hemorrhagica Neonatorum. R. M. Green, Boston.
29 *Three Methods for Diagnosis of Tuberculosis by Sputum Examination. R. Ertischek, Rutland.

24. **Anaphylactic Skin Reactions Excited in Hay-Fever.**—Fifty-eight cases giving a history of hay-fever were examined by Goodale. The extracts were prepared by soaking the pure pollen for twenty-four hours in 15 per cent. dilution of alcohol and filtering. Forty-five cases were examined with reference to grasses. It was observed that in all positive cases the red-top, timothy and blue grass equally excited reactions. Of these cases eight were affected by grass alone, none of the other plants tested exciting reaction. Thirteen cases were affected both by grasses and ragweed alone. Six cases showed positive reactions toward grasses, ragweed and golden-rod, and a variety of other plants. Three cases showed positive reactions to grasses and roses alone. The beach grass was tested in twenty-seven cases. This, although flowering late in the season, excited positive reactions in eleven cases of the spring form, fifteen cases being doubtful or negative.

Ragweed was tested in 49 cases. Of these, 45 were positive, 4 being negative; 13 were affected by ragweed alone, no other plants tested exciting reaction. Sixteen were positive with reference both to ragweed and to golden-rod, but not to other plants. One case showed positive reactions to grasses, ragweed and roses, but not to golden-rod or to other plants. Forty-nine cases in all were tested for golden-rod. Of these, 26 were positive, 23 being negative. One case only showed positive reaction to golden-rod alone, without disturbance from other plants, all of the other positive golden-rod cases reacting also to ragweed.

Twenty cases were tested for yarrow, 5 being positive, 15 doubtful or negative. Beach wormwood was tested in 6 cases, 2 of them showing moderate reaction, 4 being negative. Field daisy was tested in 14 cases, 5 of them showing a moderate reaction, 9 being doubtful or negative. Burdock and fall dandelion were tested in 3 cases, showing each 1 positive and 2 negative results. Hawkweed was examined in 17 cases, 5 being positive and 12 negative. English daisy (*Bellis perennis*) was examined in 20 cases, 4 being positive and 16 negative. Pigweed was examined in 26 cases. Three of these were positive, and 23 were negative. Wild carrot, or Queen Anne's lace, was examined in 23 cases, only 1 being positive and 22 negative. Tansy was examined in 12 cases, 2 being positive and 10 negative. Two types of roses were tested, the early flowering Japanese rose and the late flowering prairie rose. The Japanese rose was examined in 19 cases, 3 being positive, the remainder without reaction. The prairie rose was tested in 8 cases with negative results. The mock orange was tested in 6 cases, 2 of these being positive. Tests were also made in a few cases with negative results of the following plants: California poppy, hawthorne, bayberry, frost grape, jack pine, peony, white oak, rhododendron, hardhack.

26. **Asthma in Children.**—Talbot is of opinion that the evidence at hand points to the fact that asthma is a manifestation of anaphylaxis, namely, a local manifestation in the lungs. It is conceivable that the urticaria which is seen on the skin may also come on the mucous membrane of the bronchi, and thus cause the symptoms of asthma. Asthma in a certain number of children is due to egg poisoning. Scarification of the skin and inoculation with egg white will show whether egg albumin is the specific cause of the asthma. Many, if not all cases of egg asthma may be immunized to egg white by feeding them with gradually increasing doses of egg albumin in capsules. When the egg idiosyncrasy is cured the asthma stops unless an idiosyncrasy to some other protein complicates the situation. Horse-asthma is an anaphylactic phenomenon due to protein of the horse and may be recognized by scarifying the skin and applying horse-serum. A similar reaction to the egg reaction results.

29. **Three Methods for Diagnosis of Tuberculosis by Sputum Examination.**—The methods used by Ertischek are as follows: 1. Direct smear. 2. Antiformin digestion. 3. Salting method of Davis. Out of 168 specimens examined, which form the basis of this report, 149 were negative to all three methods. Direct smear found four positives that the antiformin did not. Direct smear found six positives that salting did not. Antiformin found six positives that salting did not. Antiformin found four positives that direct smear did not. Salt solution found six positives that direct smear did not. Salt solution found six positives that antiformin did not. Three specimens were positive to all methods.

Florida Medical Association Journal, Jacksonville

October, I, No. 4, pp. 97-128

30 Family Physician and Public Health. C. E. Terry, Jacksonville.
31 Enemas, Wise and Otherwise. G. M. Niles, Atlanta, Ga.
32 Conservative Abdominal Cesarean Section. C. L. Jennings, Jacksonville.
33 Vincent's Angina. Report of Case. W. G. McKay, Jacksonville.
34 Prostatic Hypertrophy. J. S. McEwan, Orlando.

Illinois Medical Journal, Chicago

October, XXVI, No. 4, pp. 221-486

35 Society Largely Responsible for Most Potent Factors of Nervous and Mental Diseases. C. King, Atlanta, Ga.
36 Duty of State to Protect Society from Defective Individuals. W. S. Lindsay, Topeka, Kan.
37 Man's Tendency Toward Aberration. M. Solomon, Chicago.
38 Relation of Psychiatry to Medicine. C. Ricksher, Kankakee.
39 Bilateral Peripheral Facial Palsy. Report of Case. T. B. Throckmorton, Des Moines, Ia.
40 Diagnosis of Insanity. J. Grinker, Chicago.
41 An Experience in Pedagogy Among Chronic Insane. E. F. Leonard, Chicago.
42 Pathologic Characteristics of Habitual Criminal. P. E. Bowers, Michigan City, Ind.
43 Brain Heredity and Brain Hygiene. J. T. Searcy, Tuscaloosa, Ala.
44 Chronic Alcoholism. C. F. Read, Dunning.
45 Emotional Factor in Etiology of Suicide, Criminality, Insanity and Mortality. H. S. Munro, Omaha.
46 Insight in Cases Recovered from Manic-Depressive Attacks. S. N. Clark, Kankakee.
47 Wisconsin's Fight Against Degeneracy. F. I. Drake, Waupun, Wis.
48 Relation of Cerebellum to Labyrinth. T. L. Long, Cherokee, Ia.
49 Spurious and Genuine Treatment of Psychoses. T. A. Williams, Washington, D. C.
50 Prevention of Nervous and Mental Diseases. C. F. Neu, Indianapolis.
51 Commitment of Insane of United States. T. Diller, Pittsburgh.
52 Dementia Praecox with Special Reference to Treatment. H. A. Lindsay, Independence, Ia.
53 Abderhalden Reaction in Dementia Praecox. A. E. Sterne, Indianapolis.
54 Diagnosis and Treatment of Dementia Praecox. B. Holmes, Chicago.
55 Precautions and Limitations of Abderhalden Method in Examination of Mental Cases. A. Gehrmann, Chicago.
56 Demonstration of Abderhalden Test. C. E. M. Fischer, Chicago.
57 New Cook County Psychopathic Hospital. H. I. Davis, Chicago.
58 Psychosis Accompanying Pellagra. A. A. Thurlow, Norman, Okla.
59 What Are Indications for Restraint? H. J. Gahagan, Elgin.
60 Mental Forces. E. A. Foley, Jacksonville.
61 Sterilization, Segregation, or Custodial Care of Mental Defectives. M. Pogue, Lake Geneva, Wis.
62 Visual Imagery and Verbal Thought. C. H. Town, Lincoln.
63 Medicopsychologic Work in Courts. W. Healy, Chicago.
64 Reeducation of Attentive Control. G. W. Robinson, Kansas City, Mo.
65 Prevention of Epilepsy. O. S. Hubbard, Parsons, Kan.
66 Epileptoid Convulsions in Alcoholics and Their Relation to Genuine Epilepsy. E. W. Katzen-Ellenbogen, Trenton, N. J.
67 Public and Private Care of Epileptics in United States and Canada. W. C. Graves, Chicago.
68 Social Aspects of Epilepsy. M. D. Lynch, Chicago.
69 Coagulation Time of Blood in Epileptics. D. A. Thom, Palmer, Mass.
70 Case of Infantilism with Hypophyseal Insufficiency. E. B. McCready, Pittsburgh.
71 Rational System of Medical Physio-Psychologic and Mental Tests for Determination of Exceptional Development in Children. M. P. E. Groszmann, Plainfield, N. J.
72 Organic Brain Lesions in Mental Defectives. W. J. Hickson, Chicago.

73 Relation of Adenoids and Tonsils to Mental Deficiency. A. M. Corwin, Chicago.
74 Relation of Eyes to Mental Deficiency. O. Dodd, Chicago.
75 Feeble-Minded: Their Environment and Social Relation. H. C. Kehoe, Frankfort, Ky.
76 Nervous and Mental Findings in Feeble-Minded Children. J. J. Mendelsohn, Lincoln.
77 Physical Cause of Mental Disease. C. W. Sawyer, Marion, Ohio.
78 Mental States in Famous Cness Players. L. Miller, Toledo, Ohio.
79 Demonstration of Living and Stained Spirocheta Pallida. C. E. Sidwell and L. D. Smith, Chicago.
80 Principles and Technic of Lange Gold Colloid Test. L. D. Smith, Chicago.
81 Lange Gold-Sol Test in General Paralysis. G. W. Brock, Peoria.
82 Relation of Syphilis to Production of Feeble-Mindedness. G. Bliss, Ft. Wayne, Ind.
83 Control of Venereal Diseases. W. A. Evans, Chicago.
84 Technic for Mixing Materials in Wassermann Test by Drop Method. W. T. Mefford, Chicago.
85 Importance of Early Diagnosis in Locomotor Ataxia. R. C. Hamill, Chicago.
86 Transient Lesions in Early Paresis. B. F. Williams, Lincoln, Neb.
87 Intraspinal Injections of Neosalvarsan. G. W. Hall and R. C. Hamill, Chicago.
88 Salvarsan in Syphilis. W. A. Pusey, Chicago.
89 Surgery in Hospitals for Insane. E. M. Green, Milledgeville, Ga.
90 Presenile Psychosis. E. Z. Levitin, Peoria.
91 Case of Dementia Praecox. W. L. Treadway, Ellis Island, N. Y.

Medical Record, New York

November 7, LXXXVI, No. 19, pp. 783-824

92 *Albumin in Sputum and Its Relation to Pulmonary Disease. G. R. Callender, Fort Bayard, N. M.
93 Problems of Life. H. M. Friedman, New York.
94 One Hundred and Fifty Cases of Twilight Sleep. J. Heller, Brooklyn.
95 Practical Points in Tonsillar Infection. B. Robinson, New York.
96 What Preparation Is There in Fundamental Branches in Dental Schools for Teaching Oral Surgery? A. H. Levings, Milwaukee, Wis.
97 Foot Troubles as Factor Affecting Human Efficiency. J. B. Tyrrell, Chicago.

92. **Albumin in Sputum and Its Relation to Pulmonary Disease.**—The following technic is used by Callender after trials of all other recorded methods, and it is recommended for those who desire to continue work with this procedure. Twenty-four-hour amounts of sputum are collected and examined fresh. The material is placed in a glass-stoppered flask, and equal quantity of 3 per cent. acetic acid added, and the mass rendered homogeneous by shaking. Allow to stand for five minutes and filter. Add 1 drop of glacial acetic acid to the filtrate to be sure of complete precipitation of mucin and repeat filtration if necessary. Take a convenient quantity, as 4 c.c., and add an equal volume of supersaturated magnesium sulphate solution, about 80 per cent. (This solution may be used at 60 C. and kept in the 37.5 C. incubator). This precipitates globulin. To another similar portion add 5 drops of 10 per cent. potassium ferrocyanid to precipitate albumin. If much globulin is found to be present by the first determination it will be necessary to filter it out before proceeding with the test as the ferrocyanid precipitates both. Except in work involving an estimation of the prognosis and cases in which globulin is more than an opalescence, this is rarely necessary. In the case of globulin precipitates form slowly and tend to remain in suspension. It was found that the heavy clouds formed in the reaction will form precipitates if given a little time. The negatives then are reactions showing no change in the clarity of the material or an opalescence or cloudiness that does not settle as a precipitate and such as may be obtained from the sputum of persons with no respiratory disease.

One hundred and eight cases are reported. Incipient active cases all showed a positive reaction. Of the moderately advanced cases 40, or 80 per cent., were positive and of the far advanced 90.3 per cent. contained albumin. One of the negative cases in the far advanced series was clinically in extremis, but repeated trials failed to show the reaction. Of fibrous cases 10 cases were examined in a separate group. Of these, 2, or 20 per cent., were positive for both albumin and globulin; the rest being negative for both. Both of the positive cases showed periodically tubercle bacilli in the sputum. A cardiac case, showed during partial compensation a plus reaction. Two months later, when compensation was complete, though raising some sputum, the reaction was negative. Two cases of bronchial asthma were repeatedly negative. A case of pulmonary syphilis showed abundant precipitates of both albumin and globulin. A case of fibrinous bronchitis, showed at all times a small amount of albumin not estimable quantitatively. A case of subacute bronchitis and a case of bronchiectasis, similarly showed small amounts of albumin. Two cases of subacute rhinitis and nasopharyngitis showed constantly in the purulent sputum a small amount of serum albumin.

Three cases in which artificial pneumothorax had been produced showed on first examination a trace of globulin and a heavy albumin precipitate. Two months later all three cases clinically showed a marked improvement and in all three the globulin had increased to a double plus reaction while the albumin was present only in traces. Callender concludes that albumin is not present in the sputum from all cases of active pulmonary tuberculosis. An increase in globulin, accompanied by a decrease in albumin, is a favorable prognostic sign. Albumin is present in the sputum from cases of pulmonary syphilis and is therefore not a means of differential diagnosis between that disease and phthisis. As a general rule, though there are exceptions, the albumin content corresponds to the amount of activity. Fibrous cases with moisture but no active tuberculosis in the lungs do not show appreciable amounts of albumin in the sputum.

Military Surgeon, Chicago

November, XXXV, No. 5, pp. 411-510

98 Preparedness. C. Adams, Illinois N. G.
99 Personal Experience and Professional Observations of So-Called Annual "Physical Test" (1910). H. G. Beyer, U. S. Navy.
100 Progress in War Transportation: Motor Ambulance, Motor Hospital and Motor Surgery. F. W. Foxworthy, U. S. Army.

New York Medical Journal

November 7, C, No. 19, pp. 901-948

101 *General Anesthesia, with Special Reference to Surgery of Genito-Urinary Tract. J. T. Gwathmey, New York.
102 Local Anesthesia in Relation to Surgery of Genito-Urinary Tract. J. F. Mitchell, Washington, D. C.
103 Is Modern Antituberculosis Crusade Really a Failure? S. A. Knopf, New York.
104 Operative Treatment of Cancer from Standpoint of Internal Medicine. A. L. Benedict, Buffalo.
105 Implantation of Generative Glands and Its Therapeutic Possibilities. G. F. Lydston, Chicago.
106 Pilocarpin in High Blood-Pressure. W. D. Robinson, Philadelphia.
107 Relief of Gas Pains after Appendicectomy. T. A. Kenefik, New York.
108 Some Essential Points in Infant Feeding. E. S. Rimer, New York.
109 Hodgkin's Disease. A. K. Yoosuf, Worcester, Mass.

101. **General Anesthesia with Reference to Surgery of Genito-Urinary Tract.**—Most patients to be anesthetized, either locally or generally, Gwathmey urges, should have the benefit of physiologic doses of morphin before anesthesia, and also of an alkali, and carbohydrate treatment both before and after operation. For very weak and feeble patients, for those in the extremes of life, or where exhaustion with acidosis is present; also where the patient is in a state of coma or has acute or subacute nephritis, or any respiratory affection, the morphin should be omitted and bromids, or paraldehyd and olive oil, per rectum, should be substituted. The essence of orange-chloroform-ether sequence, or the nitrous oxid-oxygen-ether sequence should be used instead of ether by the drop method or the "gas-ether" sequence. Chloroform throughout is the anesthetic of choice for chronic alcoholics in fair condition. Oil-ether colonic anesthesia is indicated for the very obese. For office work and short operations, it is both safe and satisfactory to use only nitrous oxid and oxygen, without any preliminary medication or the addition of ether. For major operations in genito-urinary surgery, patients can be narcotized with nitrous oxid and oxygen alone, if proper preliminary medication is given, and this combination should be more frequently employed.

Ophthalmology, Seattle, Wash.

October, XI, No. 1, pp. 1-236

110 Contribution to Experimental Study of Ocular Anaphylaxis. M. J. Schoenberg, New York.

111 Modern Therapy of Pneumococcic Infections of Eye. H. S. Gradle, Chicago.
112 Trachoma on Blackfeet Reservation. O. S. Phillips, Lapwai, Ida.
113 Contagious and Infectious Diseases Among Indians. B. J. Lloyd, Seattle.
114 Trachoma Among Indians of United States. W. H. Harrison, Missoula, Mont.
115 Ectropion of Eyelids Corrected by Skin-Grafts. L. F. Appleman, Philadelphia.
116 Prognosis in Eye Injuries. R. J. Tivnen, Chicago.
117 Fusion Faculty as Type of Faculty. M. Albro, Chicago.
118 Keratoconus. E. E. Gibbons, Baltimore.
119 Color Testing with Special Reference to Stilling's Plates. G. H. Taylor, New South Wales.

Surgery, Gynecology and Obstetrics, Chicago

November, XIX, No. 5, pp. 555-682

120 *Choice of Method of Operation in Treatment of Gastric and Duodenal Ulcer. F. A. von Eiselsberg, Vienna.
121 Choice of Operation in Chronic Gastric and Duodenal Ulcers. J. Sherren, London.
122 Ankylosis: An Experimental Study. N. Allison and B. Brooks, St. Louis.
123 *Is Thrombo-Angeitis Obliterans an Infectious Disease? L. Buerger, New York.
124 *Forward Fixation of Cervix as Predisposing Cause of Some Retrodeviations of Uterus; Operation for Its Release. E. Reynolds, Boston.
125 Intestinal Stasis: Causes of Ileal Stasis. J. T. Case, Battle Creek, Mich.
126 Diagnosis of Particular Form of Hydronephrosis Due to Movable Kidney. H. A. Kelly and R. M. Lewis, Baltimore.
127 *Regeneration of Cartilage and Bone with Special Study of These Processes as They Occur at Chondrocostal Junction. S. L. Haas, San Francisco.
128 *Clinical Manifestations of Disease of Glands of Internal Secretion in Gynecologic and Obstetric Patients. R. T. Frank, New York.
129 Volvulus: Torsion of Whole Mesentery. R. E. Weible, Fargo, N. Dakota.
130 Causal Factors in Disposition to Cancer in Old Age. A. Theilhaber, Munich, Germany.
131 Sinclair's Method for Operating on Impassable Urethral Stricture. C. H. Chetwood, New York.
132 Study of Chronic Intestinal Stasis by Means of Roentgen Rays. G. E. Pfahler, Philadelphia.
133 *Bone Transplantation as Treatment of Fracture and Fracture-Dislocation of Spine. E. P. Palmer, Phoenix, Ariz.
134 Decortication of Lung. R. S. Fowler, Brooklyn.
135 Traumatic Aphasia. Report of Case. H. A. Haubold, New York.
136 Tracheotomy: New Retractor and Tube Pilot for Emergency Operation. F. L. Hupp, Wheeling, W. Va.
137 Unusual Laceration of Female Urethra. A. Figueroa. Merida, Mexico.
138 Splenectomy for Primary Pernicious Anemia. W. W. Roblee, Riverside, Cal.
139 *Pneumatic Bag Pressure for Controlling Hemorrhage Following Suprapubic Prostatectomy. F. R. Hagner, Washington, D. C.
140 *Modification of Technic in Operation for Suppurative Appendicitis, Based on Postoperative Hemorrhage. C. S. White, Washington, D. C.
141 Results of Operation (Laryngofissure) for Intrinsic Cancer of Larynx. St. C. Thomson, London.

120. **Surgery of Gastric and Duodenal Ulcer.**—Out of a total of 334 gastro-enterostomies for gastric ulcer done by von Eiselsberg, seventeen patients died after the operation. In twelve of these the ulcer was recent. Eight died from causes referable to the ulcer itself; for instance, hemorrhage from the ulcer, due to a continuing progressive ulceration. There were 317 recoveries with 134 cures. In eight of thirty-one unrelieved cases, the ulcer was situated at the pylorus. In eleven cases the ulcer was situated at a distance from the pylorus. Eight cases were duodenal ulcers. In four cases the ulcer was not located; there were adhesions and probably the ulcers were duodenal. The interesting point demonstrated by these thirty-one cases is that ulcers situated at a distance from the pylorus are not so greatly influenced by gastro-enterostomy as those situated at the pylorus. First among the causes which are responsible for failure to cure by operation is the development of a postoperative peptic ulcer of the jejunum. This occurred seven times in 334 gastro-enterostomies.

Thirteen patients, or about 10 per cent., died of cancer of the stomach. In six the continuance of the growth and the development of the ulcer after the operation were the causes of death. In one of these six cases, the patient developed morphin habit through the pain he suffered, and died; another died from hemorrhage; another died following perforation of the ulcer; another had very severe pain and hemorrhage; jejunostomy was performed, but the patient committed suicide; and finally in one case the pains continued, but further details are unknown. Three patients died of tuberculosis of the lungs. One patient died of tumor of the suprarenal body. The cause of death in the remainder is unknown.

In thirty-six cases of ulcerative processes in the stomach and duodenum, unilateral pyloric exclusion was performed. Eleven patients made a complete recovery after the operation. Of four cases unrelieved, in one the whole ulcer was extirpated to relieve the continued pain, and cure followed; one patient still suffers from attacks of hemorrhage; and two patients developed symptoms of peptic ulcers. Of three who died at a later date, one developed cancer of the stomach and two patients developed peptic ulcers.

Von Eiselsberg observed the formation of peptic ulcers seven times in gastro-enterostomies. In addition to this he has found peptic ulcers in five patients on whom gastro-enterostomies had been done by other surgeons and in one of whom he did relaparotomies. Four patients developed symptoms of peptic ulcer following unilateral pyloric exclusion. In the seventeen cases the chief symptom was the development of a very painful induration in the neighborhood of the gastro-enterostomy fistula, the discomfort and pain becoming so great that one could scarcely touch the spot. Von Eiselsberg emphasizes that whenever possible the peptic ulcer should be excised.

123. **Is Thrombo-Angeitis Obliterans an Infectious Disease?**—This question is answered by Buerger in the affirmative. He says that thrombo-angeitis obliterans is a disease in which an acute inflammatory lesion and occlusive thrombosis of arteries and veins are the characteristic lesions. From the mechanical point of view and from the point of view of symptomatology, the thrombotic occlusion is the most important phenomenon. The thrombosis is probably preceded, and certainly accompanied, by an acute inflammatory or exudative stage. The lesion involves deep veins in about 40 per cent. and the superficial veins of the upper and lower extremity in 20 per cent. of the cases. Recent investigations of the veins show that the acute lesions in the superficial vessels and the deep vessels are identical. The histologic changes in the veins point to the existence of an infectious process. Buerger believes that future studies should be directed toward the discovery of the causative agent in specimens cut out from the superficial veins when they are the seat of the acute thrombophlebitis. In this way it is hoped that the etiology of the disease may soon become revealed.

124. Abstracted in The Journal, June 20, p. 1987.

127. **Regeneration of Cartilage and Bone.**—It is Haas' opinion that the periosteum is directly and actively concerned in the regeneration of bone. In the early stages the periosteum proliferates to form a cartilaginous tissue, which is later transformed into bone. The exact method of the changes from cartilage to bone cannot be determined. There is considerable evidence in favor of the direct change of the cartilage-cell into the bone-cell. There is at times the appearance of the osteoblast forming bone and substituting the cartilage. Therefore it seems to Haas that both processes can take place at the same time. The regeneration of bone also takes place from the marrow and cortical bone, but in a more limited degree and at a later period than that from the periosteum. The regeneration of cartilage takes place almost entirely from the perichondrium. It proceeds by a direct proliferation of all the layers of the perichondrium beneath the outer fibrous tissue. There is some evidence in favor of the view that the connective tissue is also transformed into cartilage under the stimulation of the neighboring cartilage or perichondrium. There is a slight amount of regeneration of cartilage from the original cartilage near the perichondrium, but the remainder of the cut end tends to undergo degenerative changes. The extent of the removed cartilage exerts no influence on the regeneration.

128. **Disease of Glands of Internal Secretion in Gynecologic Patients.**—The following facts are emphasized by Frank. The glands of internal secretion control and regulate many

vital processes, including development, growth, nervous impulses, psychic manifestation, metabolism and reproduction. Each gland, regarded individually, exerts a predominant influence on one or more of these functions. In order to produce a perfect individual and maintain perfect health, the interaction of these glands must be normal. Disturbance of this perfect interrelation reacts on the genital sphere in only one of two ways—in an increase or a decrease of function. The gonads, in turn, may react on one or more of the other ductless glands, causing a multitude of variations. The ovary, through which all impulses to the genital tract are transmitted, or in which they originate, is a compound organ (like the hypophysis or adrenal) made up of at least two (follicle apparatus, corpus luteum) or perhaps three (interstitial gland) components. Of these components, the follicle apparatus (and perhaps the interstitial gland) controls the growth and nutrition of the genitals, the corpus luteum controlling the periodicity and production of the cyclical changes. The local pregnancy changes are probably accounted for by the persistence of the corpus luteum, but that the products of conception, which surely cause the persistence of the yellow body, may share in causing both the local and systemic phenomena accompanying pregnancy.

Genital hypofunction manifests itself clinically chiefly as follows: a. Anatomically; locally, by aplasia of the genitals, systemically by the signs of infantilism, eunuchoidism, and other variations depending on the time of onset and the other ductless glands most affected. b. Symptomatically; by scant or infrequent menstruation, amenorrhea, dysmenorrhea and sterility. The genital hyperfunction manifests itself clinically chiefly as follows: a. Anatomically; locally, no change, "metritic type," fibroids (?); systemically, often no change. b. Symptomatically, by too profuse, too prolonged, or too frequent menstruation; occasionally, by overfertility.

133. **Bone Transplantation in Fractures of Spine.**—As the result of a trauma Palmer's patient sustained a laceration of the supra- and infraspinous ligaments between the eleventh and twelfth dorsal and first and second lumbar vertebra. Both lamina of the twelfth dorsal were completely fractured and displaced inward, pressing on the cord, so all that was necessary to expose the cord was to dissect the soft tissues from the spinous process and lift the bony fragment from its bed. The right lamina of the first lumbar vertebra was fractured. Removal of the bony fragment of the twelfth dorsal revealed a cord compressed by angulation of the spinal canal at the junction of the twelfth dorsal and first lumbar vertebra. The cord compression was relieved by a laminectomy on the first lumbar. The cord soon regained its normal fullness and appeared uninjured.

Three weeks after the laminectomy two spinous processes above the injured vertebra and two below were exposed. The supraspinous and infraspinous ligaments over and between the two processes above, and then those of the two processes below, were cut through and separated from the tips of the spines. The supraspinous ligament over the injured vertebra was cut through and the muscle separated to make a bed for the transplant. Six and one-half inches by 1 inch by ¾ inch, with periosteum and marrow-substance removed from the crest of the right tibia. Recovery was uneventful. The patient left the hospital twelve weeks after the injury, able to stand alone and walk with assistance. Since the fifteenth week she has walked freely without assistance and has improved steadily.

139. **Controlling Hemorrhage Following Suprapubic Prostatectomy.**—The following is Hagner's method of application: A specially constructed sound with beveled end is passed into the urethra and out through the suprapubic wound; the tube attached to the bag is threaded over the beveled end and the sound withdrawn through the urethra, the tubing being pulled through and the bag pulled into place by traction on the tube. The bag is then distended with air by Janet's syringe, the pressure within the bag being readily discernible by the back pressure on the syringe. To help hold the bag in place, Hagner has wrapped gauze around the tube in cases in which it comes in contact with the end of the penis; however, the cut-off muscle tends to shut down on the tube and hold the bag in position.

140. **Operation for Suppurative Appendicitis.**—White believes that the routine ligation of the deep epigastric in drainage cases when the incision approaches the vessel will reduce the morbidity and mortality of the surgical treatment of appendicitis.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Roentgen Ray, London

October, XIX, No. 5, pp. 159-198

1 Cerebral Electrization. S. Leduc.
2 Cinematography of Antrum Pylori, and First Part of Duodenum. A. H. Pirie.
3 Gastric Borborygmi. A. E. Barclay.
4 Comparative Value of Roentgen Rays and Radium in Treatment of Malignant Growths. F. Hernaman-Johnson.
5 *Plastic Roentgen Ray Proof Preparation of Use in Roentgen Therapy. E. P. Cumberbatch.

5. **Plastic Roentgen-Ray Preparation of Use in Roentgen Therapy.**—The following formula, Cumberbatch says, is opaque to the Roentgen rays, it can be easily moulded, and it does not adhere to the patient's skin. A sample which was made twenty-two months ago has retained its plasticity to the present day. The preparation is composed of:

Bees' wax	1	parts by weight
Vaseline	1	
Resin (finely powdered)	¼	
Lanolin (hydrous)	½	
Lead oxid (litharge), finely powdered	6	

The first four ingredients must be melted on a boiling water-bath, in the order given, and each must be completely melted before the next is added. Then the finely powdered litharge is added, little by little, stirring all the time. When all is added, the vessel is removed from the water-bath and allowed to cool. Stirring must be continued till the mixture become viscid, otherwise the heavy litharge will sink to the bottom of the vessel and the preparation will have an uneven consistency. Immediately after it has solidified it tends to adhere to the skin of the operator when it is moulded, but the preparation improves greatly after a few days, especially if it is occasionally moulded. A layer about 1 millimeter thick appears to be perfectly opaque to the Roentgen rays when placed under a screen between it and the source of the rays, and the outlines of a piece of lead ⅛ inch thick are not discernible. Cumberbatch has found the preparation useful in the Roentgen-ray treatment of rodent ulcers of the lower lid, and for a case of keloid of curious shape situated over the side of the face.

British Medical Journal, London

October 24, II, No. 2808, pp. 697-740

6 Influence of Enforced Dogmatism in Medicine. F. Treves.
7 Use of "Dum-Dum" and Explosive Bullets in War. W. F. Stevenson.
8 Soldiers' Feet and Footgear. (To be continued.) C. Webb-Johnson.
9 Insects and War: Flies. A. E. Shipley.
10 Action of Radiations on Cells and Fluids. W. S. Lazarus-Barlow.
11 Variability Among Bacteria and Its Bearing on Diagnosis. W. J. Penfold.
12 *Presence and Significance of Nitrites in Urine. J. Cruickshank and J. M. Moyes.
13 *Recognition of Hemic Infections of Urine: Its Clinical and Experimental Value. E. C. Hort.
14 Aneurysm of Aorta Due to Bacterial Infection. J. M. Morgan and J. H. Teacher.

12. **Presence and Significance of Nitrites in Urine.**—Cruickshank and Moyes are of opinion that the most common cause of nitrituria is an associated urinary infection, and that the presence of bacilluria should be sought for in all cases. The organisms generally belong to the *B. coli* group and possess in marked degree the power to split the nitrate of urine into nitrite. The test for nitrite in the urine affords a simple and fairly reliable method of detecting cases of urinary infection without the use of microscope, provided that

the infection is not of such degree as to render the urine markedly alkaline.

13. **Hemic Infections of Urine.**—In fifteen recent cases of typhus occurring in Ireland, Hort made films from the fresh blood, and obtained cultures from which he was able to identify the large so-called diplococcal and diplobacillary organisms which various observers have regarded as the causal agents of the disease. He has found that injections of the cultures of these organisms in citrated human blood, in which growth is easily obtained, has in no case produced any observable pathogenic effects in bonnet monkeys. He concludes, therefore, that these large organisms are not themselves responsible for the production of the disease.

In thirty cases of typhus Hort examined the urine by immediate examination of fresh specimens and by cultivation. In the great majority the fresh urine during the period of fever was turbid from the presence of micro-organisms. Both in catheter specimens in the two sexes and in non-catheter specimens the bacteriologic findings in films made from the fresh centrifuged urine were strikingly similar. In all the urines examined before the crisis great numbers of large coccal and bacillary organisms, morphologically similar to those found in the blood, were observed, and their identity was later established in the ordinary way. In each case there were also present in the deposits of the fresh urine minute organisms which occurred singly, or in pairs or in clusters. When in clusters, as well as when occurring free, they were sometimes coccal in form, sometimes bacillary, and often it was impossible to determine whether they were the one or the other. They were both Gram-positive and Gram-negative in the same clusters, they had no apparent capsules, and they were non-motile. They varied in size from about 0.1 or 0.2 micron to about 0.5 micron in their greatest diameters when in pairs, and when single their greatest diameter was proportionately smaller. They rapidly disappeared from the urine when this was incubated, and after a few hours the larger coccobacillary forms only could be found, and these readily multiplied both in urine and in, or on, the ordinary laboratory mediums. Injection of these cultures into bonnet monkeys produced no apparent pathologic effect.

After filtration of the urine through tested Berkefeld candles Hort was able in many cases to show, by immediate examination of the filtrate, the small coccobacillary forms freed from admixture with the larger non-pathogenic organisms. When, however, the filtrate was incubated, they quickly disappeared, their place being taken by the large coccal and bacillary organisms, which also proved on injection into bonnet monkeys, to be non-pathogenic. The fresh urine of bonnet monkeys successfully inoculated with human typhus blood contained, during the period of fever, great numbers of the small and large coccobacillary forms, and the filtrate of this urine, when fresh, also contained the smaller forms alone. If, however, incubation were allowed for a few hours, they could no longer be found, their place being again taken by the large non-pathogenic forms.

By inoculation of human blood-agar with the fresh filtrate of fresh human typhus urine Hort has been able to obtain cultures of the small coccobacillus in which the small size is retained. On subculture, however, it tends to become mixed with larger forms. Injections of the first culture on human blood-agar into two bonnet monkeys gave rise to a high continued fever after the lapse of a definite incubation period of a few days. From fresh human typhus blood, and from fresh cerebrospinal fluid, Hort has been able to cultivate the small coccobacillus on human blood-agar, as in the case of fresh urine. On injection of the blood and cerebrospinal cultures on blood-agar the procedure has, in bonnet monkeys, been followed by high fever after a well-marked latent period.

Journal of Obstetrics and Gynecology of British Empire, London

July, XXVI, No. 1, pp. 1-72

15 *Etiology of Eclampsia and Albuminuria and Their Relation to Accidental Hemorrhage. J. Young.
16 *Further Modification of Anterior Colporrhaphy Combined with Amputation of Cervix. W. E. Fothergill.
17 Aneurysm of Internal Iliac Artery. W. E. Fothergill.
18 Post Mortem Specimen of Ruptured Tubal Pregnancy; Symptoms Suggesting Irritant Poisoning. W. A. Mackay.
19 Ovariotomy Followed by Ectopic Pregnancy in Stump. H. Clifford.
20 Three Cases in Which an Early Twin Ovum Was Delivered Together with Full-Term Child. W. W. King.
21 Case of Allantoido-Angiopagous Twins. D. Dougal.
22 Case of Double Ovarian Cyst. M. H. Phillips.
23 Contraction Ring as Cause of Dystocia. V. B. G. Armytage.
24 Mammary Murmurs of Lactation. E. M. Cowell.

15. **Etiology of Eclampsia and Albuminuria.**—That eclampsia and the albuminuria of pregnancy are due to the liberation of the products of early autolysis of the placenta, Young says, has been established by the following considerations: (1) The toxemias are especially associated with recent infarction of the placenta. (2) Placental infarction is due to an interference with the maternal blood supply of the part. (3) The interference with the blood supply, which is responsible for the infarction, is not dependent on a toxic state and in point of fact may occur in the most extreme form, in which there is no evidence of a toxemia, namely, accidental hemorrhage. (4) The placenta is so constructed that, if a part of it dies, the products liberated from the dying patch can pass directly into the blood-stream. (5) In cases in which the placental disease is gradual in its onset there is more chance of the evolution of the infarcted patches. This explains why, in long-standing albuminuria, there may be more visible placental disease than in an acute eclampsia. It is just the gradual development of the toxemia that allows of the pregnancy continuing. (6) These facts all suggest that the toxemias are due to the autolytic products liberated in the early stages of the placental death.

By imitating the process, which occurs *in utero*, it has been possible to isolate from the healthy placenta a material or materials of a soluble kind which reproduce the clinical features and morbid changes, which all agree are especially characteristic of eclampsia. These are (a) convulsions; (b) peripheral focal necrosis in the liver, and (c) degenerative lesions in the kidney, especially located in the convoluted tubules. Young urges making a thorough exploration of the uterus in all cases of post partum eclampsia for a small piece of retained placenta, for a comparatively small piece may suffice to liberate fatal poisons.

16. **Anterior Colporrhaphy.**—The steps of the Fothergill operation by the new method are as follows: 1. Dilate the cervix. 2. Pick up four points, one just behind the urethral orifice, one at the junction of the cervix and the posterior vaginal wall, and one on either side of the cervix, about an inch to right and to left of the cervicovaginal junction. 3. Connect the four points by an incision through the vaginal wall. 4. Begin at the urethral angle of the incision and separate the area of vaginal wall enclosed by the incision from the bladder and the other adjacent structures until it remains attached only to the cervix. 5. Snip round and round the cervix until a sufficient portion of the latter is exposed. 6. Cut through the cervix without splitting it. 7. Stitch the stump of the cervix into the posterior angle of the wound, working from behind forward, and placing the sutures so that they radiate round the new os uteri. 8. Close the remainder of the incision from side to side.

Journal of Tropical Medicine and Hygiene, London

September 15, XVII, No. 18, pp. 273-288

25 Trypanosomiasis in Lado of Anglo-Egyptian Sudan. A. J. Chalmers and W. R. O'Farrell.

October 15, No. 20, pp. 305-320

26 Hyphomycetes Found in Sprue: Classification of Fungi of the Genus "Monilia Gmelin 1791." A. Castellani.
27 Beriberi in Papua. W. M. Strong.

Lancet, London

October 24, II, No. 4756, pp. 979-1030

28 Advances in Knowledge Regarding Circulation and Attributes of Blood Since Harvey's Time. R. D. Powell.
29 Shell Wounds in Modern Naval Warfare. B. Pick, R. A. Rankine and J. Lambert.
30 Pyloric Obstruction in Infants. C. H. Miller.
31 Prognosis in Cancer of Tongue. W. Trotter.
32 Case of Malignant Disease of Lung. H. N. Taylor.
33 Limitation of After-Pain of Quinin Injections. A. G. Peter.

Practitioner, London

October, XCIII, No. 4, pp. 445-588

34 *Study of Rheumatic Infection. F. J. Poynton, C. D. S. Agassiz and J. Taylor.
35 *Carcinoma of Stomach, with Reference to Treatment. J. Sherren.
36 Surgical Treatment of Hydroccle. J. S. McArdle.
37 Value of Large Doses of Tuberculin. W. C. Wilkinson.
38 Points in Examination of Nose and Treatment of Its Common Disorders. M. Yearsley.
39 Operative Treatment of Exophthalmic Goiter. Report of Fourteen Cases. A. J. Walton.
40 Value of Rectal Examination in Diseases Other than Those of Rectum. H. G. Anderson.
41 Hemorrhoids. I. Back.
42 Intubation Instruments. E. W. Goodall.
43 Law and Medicine, 1913-1914. W. A. Brend.
44 Dangers of Double Meaning Suggestion. A. Douglas.

34. **Rheumatic Infection.**—The author's analysis is based on 350 fatal cases of rheumatism. There were 195 females and 155 males in this series. In 100 consecutive cases there was a strong family history in 26. In 250 cases under 12, 59 died in what were apparently first attacks, and four more were doubtful. In 100 cases over 12, only 3 deaths were recorded in a first attack, and 2 of these were practically children, being both 13 years of age. One case, a young woman of 21, died in a first attack of acute carditis. With few exceptions, the fatal issue was the result of cardiac disease and its complications. In 250 cases under 12 the pericardium was affected in 215. In 250 cases the mitral valve was only reported undamaged in 3; the aortic valve in 102 cases; the tricuspid in 78 cases; the pulmonary valve in 6 cases. In this series, there were 102 examples of combined aortic and mitral lesion. An analysis of the cardiac lesions in patients over 12 years showed that 22 died of malignant endocarditis; 29 died of mitral stenosis; 20 died of mitral and aortic disease of the simple form; 15 died of double mitral disease; 9 died of acute carditis—characteristic of childhood; 1 died, without a valvular lesion, from a dilated heart and external pericardial adhesions at the age of 16.

There were 30 cases of malignant endocarditis. In 14 of the 30 cases there seemed to be a decided relation between the rheumatism and malignant endocarditis. From a study of this series it was apparent that arthritis, pericarditis, nodules and other manifestations of a rheumatic type, may occur during the final illness, and may actually be recovered from. In only 3 of the 350 cases was there no valvular lesions and death from myocardial failure. One was acute, the other 2 were chronic. Pleurisy and mediastinitis in a series of 100 cases were present in 50 per cent. Two cases demanded paracentesis. Congestion and basal edema, with brown induration in some cases was present in at least 38 out of 100 cases. There were two examples of acute edema of the lungs in 100 cases. Bronchopneumonia occurred in 12 per cent. of these cases. Infarctions were present in 11 per cent.; peritonitis in 5 cases; ascites occurred in 10. Thrombosis of branches of the portal vein occurred in one instance, and hemorrhages into the mucous membrane of the stomach also in one instance. Thrombosis of one or more of the large veins in the neck occurred in three cases.

35. **Carcinoma of Stomach.**—Sherren urges that every suspicious case should be considered surgically, and that cases of chronic gastric ulcer should be submitted to surgical treatment early. In this way the percentage of "cures" will be much improved and the incidence of the disease greatly lessened.

Bulletin de l'Acadêmie de Médecine, Paris

October 13, LXXVIII, No. 31, pp. 147-162

45 *Surgery in the Field. (Chirurgie de guerre.) T. Tuffier.
46 *Conservative Surgery in the Field. (Conservation des membres dans les plaies des parties molles et les fractures diaphysaires.) L. Picqué.

45-46. Both these articles were summarized in the Paris Letter in The Journal, November 7, p. 1684.

Centralblatt für die Grenzgebiete der Med. und Chir., Jena

September, XVIII, No. 5, pp. 391-506. Last indexed Aug. 22, p. 712

47 *Diagnosis of Disease of the Kidney by the Roentgen Method. (Röntgendiagnostik der Nierenerkrankungen.) W. Altschul.
48 *Gonorrheal Arthritis. O. M. Chiari.
49 Etiology of Gastric Ulcer. R. Vogel.

47. **The Roentgen Method of Examining the Kidneys.**—Altschul gives an alphabetical list of 604 articles on this subject and compares the views of the different authors. He expatiates on the extreme importance of the Roentgen findings not only with calculi and displacement of the kidney but in hydronephrosis and pyonephrosis. The Roentgen method with a tumor or tuberculous process in the kidney is less instructive than other methods of clinical examination, as a rule. "A reliable Ronetgen picture of the kidney should show the edge of the psoas, the transverse processes of the vertebrae and the last rib. The edge of the psoas does not encroach on the kidney shadow in normal condition. Kidney calculi cast a shadow so that negative findings exclude a concrement with 97 per cent. certainty." Even in the apparently negative cases the concrement may show up if a silver salt is injected into the pelvis and then withdrawn. Enough of the silver salt clings to the concrement to render it visible then.

In case of positive findings the various sources of error must be excluded. He lists forty-eight possible sources of error, including fruit stones, gall-stones and concrements in the bowel or prostate, cheesy or calcareous processes, scars in the kidney, relics of bismuth in the bowel or of iodipin possibly decades after intramuscular injection, warts on the back, undissolved pills, salol, fragment of broken spinous process, calcified parasites in muscle tissue, hypernephroma, deposits of sulphur, etc.—he cites one or more clinical instances of each. Even the most expert are liable to draw mistaken conclusions at times, as when the opaque catheter passed smoothly along past a suspicious shadow in the ureter, and it proved to be a ureter stone lodged in a diverticulum. The diagnosis of kidney stones used to be made too lightly and too frequently.

48. **Gonorrheal Arthritis.**—Chiari reviews 470 articles published on this subject in the last ten years. Gonococci are seldom found in the effusion in the joint after the acute stage is past, except in the more malignant types with involvement of the myocardium. He tabulates 443 cases in which vaccine therapy was applied with autogenous or commercial vaccine. Only forty-two cases were uninfluenced; thirty-two patients were improved and 367 cured. In 16 cases antimeningococcus serum was used instead of a vaccine, and 13 of the patients were cured. Ramond reported in 1911 successful autoserotherapy in 5 severe suppurating cases; he injected several times from 1 to 5 c.c. of the fluid obtained by puncturing the joint. The injection was made subcutaneously near the joint in question. Maillet has reported similar experiences, as also Constantinescu with hydrarthrosis. The progress in the last decade has been such that we can count now on curing the arthritis with vaccine therapy and physical measures, especially stasis hyperemia and superheated air, or at least inducing marked improvement even in apparently desperate cases.

Deutsche medizinische Wochenschrift, Berlin

October 8, XL, No. 41, pp. 1833-1856

50 *Prevention and Treatment of Tetanus. (Indikationen für die serumtherapeutische Tetanusbekämpfung.) E. von Behring.
51 Experimental Syphilis of Rabbit Eye. (Primäraffekt und Keratitis parenchymatosa beim Kaninchen, bewirkt durch Reinkulturen von Syphilisspirochäten.) J. Schereschewsky.
52 Protective Ferments Not Found Specific. (Erfahrungen mit dem Abderhaldenschen Dialysierverfahren.) R. Otto and G. Blumenthal.
53 Negative Abderhalden Reaction Probably Excludes Pregnancy. (Die Abderhaldensche Schwangerschaftsreaktion.) A. Eder.
54 Vital Staining with Acid Stains. (Vitalfarbung mit sauren Farbstoffen und ihre Abhangigkeit vom Losungszustand der Farbstoffe.) W. von Möllendorff.
55 Injury and Disease of the Eyes in the Field. (Augenerkrankungen im Kriege.) A. Groenouw.
56 *Work of the Dentist in the Field. (Aufgaben des Zahnarztes im Kriege.) W. Dieck.

October 15, No. 42, pp. 1857-1880

57 *Experimental Analysis and Theory of Anaphylactic and Apotoxic Intoxication. (Anaphylaktische und apotoxische Vergiftung.) E. von Behring.
58 Clinical Anthrax. (Zur Pathologie und Klinik des menschlichen Milzbrandes.) Mathias and Blohmke.
59 Actinomycosis. E. G. Dresel.
60 Hospital Trains. (Organisation der Lazarettzüge.) M. Christian.
61 Transportation and Care of the Wounded. (Versorgung unserer Verwundeten.) V. Czerny.

50. **Serotherapy of Tetanus.**—Behring calls attention to the fact that the symptoms of tetanus are the result of the action of the tetanus toxin on the central nervous system and especially on the motor ganglion cells. The tetanus toxin reaches the spinal cord only by way of the nerves, on account of its special affinity for nerve tissue. Research has demonstrated further that the toxin makes its way up the nerve tissue quite slowly. One consequence of this is that the longer the nerve tract, the longer the period before the characteristic symptoms develop. It takes five days in the horse, one or two days in the dog, thirteen to eighteen hours in guinea-pigs, and only eight to twelve hours in mice. The local focus should be excised and antitetanus serum be given to neutralize the still free toxin, and the passage of the toxin up through the nerve tissue interrupted by resection of the nerve. It is useless, he says, to amputate the whole limb when all that is needed is to make a gap in the nerve running to the focus of infection. His collaborator for twenty-five years, "H. S.," has on three occasions accidentally infected himself with tetanus by the breaking of a glass vessel. The third time (1902) the cramps of the shoulder, chin and eyelids and bad general symptoms following the breaking of a tetanus culture tube in his hand all subsided after the trunk nerves were exposed in the axilla and an injection of the strongest antitetanus toxin made into each. The tetanus was arrested and gradually retrogressed to complete recovery. The use of the arm was restricted for a time but was finally regained in full. In prophylaxis, Behring thinks that wounds with bad smelling secretions had better be treated with iodoform in coarse crystals while those of benign aspect should be irrigated with a 0.1 or 0.5 per cent. solution of iodin trichlorid. Preventive antitetanus serum may merely postpone the tetanus which may develop as soon as the effect of the serum has worn off. Consequently it may be well to make a second injection with an antitetanus serum designed to avoid danger of anaphylaxis.

56. **Dental Protheses for the Wounded.**—Dieck insists that the teeth of the soldiers should be put in good condition before they are sent to the front. All broken-off roots should be pulled even if they are not causing disturbance. The tissues around are seldom quite normal and although there is no trouble under ordinary conditions, chilling, wetting and trauma are liable to set up mischief in the old prongs at any moment. In fact he goes back of the reservist to the children, and emphasizes the necessity of systematic training and dentistry of the children in school as a vital factor in building up the health of the rising generation and reducing dental trouble in the land and sea forces. Dental protheses are of the greatest importance in case of wounds of the jaw, as fracture of the jaw is of more vital consequence, he declares, than fracture of any other bone, perhaps. The Japanese army was supplied with ready-made adjustable splints for fractured jaws, and they restored the functional use of the jaw.

57. **Blood Platelets Responsible for Anaphylactic Intoxication.**—Behring reviews here the intensive research in regard to anaphylaxis which has been conducted during the last four years at the institute at Marburg in his charge. The results confirm the assumption that the blood platelets are responsible for anaphylactic shock. Some disturbance in the medium or in themselves causes them to clump, and the consequence is obstruction of the smallest blood vessels with the clumped platelets. This in the brain brings on anaphylactic shock. It is more than a mere coincidence that all substances which induce anaphylactic shock in normal, nonsensitized guinea-pigs have a destructive action on the blood platelets, both in the test-tube and in the living body. The history of this view and the various data which have led up to it are analyzed and the practical result stated that he has succeeded in making an extremely powerful agglutinating substance out of the blood platelets; it is capable of coagulating a mixture of fibrinogen, etc., with one part to forty million parts of the mixture. He suggests that the platelets should more properly be called "thrombocytes."

Münchener medizinische Wochenschrift, Berlin

October 13, LXI, No. 41, pp. 2057-2088

62 Tachysystoly of the Auricle and Irregular Pulse. (Rhythmische Vorhoftachysystolie und *Pulsus irregularis perpetuus*.) H. E. Hering. Concluded in No. 42.
63 *Secondary Changes after Fracture of Semilunar and Scaphoid Bones. (Traumatische Malazie nach Frakturen des Os lunatum und Os naviculare carpi.) v. Gaza.
64 Successful Abortive Treatment of Syphilis Twice in Two Years. (Zweimalige Abortivheilung der Syphilis bei Reinfektion nach 2 Jahren.) E. Hoffmann.
65 Heart Block from Gunshot Wound of the Heart. (Herzblock und Herzschuss.) Koetzle.
66 *Prophylaxis of Epidemic Disease in the Field. (Bekämpfung der Kriegsseuchen im Felde.) Nocht. Concluded in No. 42.
67 *Prophylaxis of Tetanus in the Army. (Zur Vorbeugung des Starrkrampfes im Heere.) E. Jakobsthal.
68 Impressions of a Physician at the Front. (Kriegsbriefe aus der Kriegslazarettabteilung I. Bayr. Armeekorps.) Schloesser.
69 Setting Up a Field Hospital for the First Time. (Die erstmalige Einrichtung unseres Feldlazarettes.) H. Albrecht.
70 Bursting in Tissues of Regulation Bullet. (Explosiv-Geschoss ähnliche Wirkung der deutschen Infanterie-S-Munition bei Nahschuss.) M. Nippe.
71 Dental Protheses for Wounds of the Jaws. (Die zahnärztliche Therapie der Schussverletzungen der Kiefer.) C. Greve.

63. **Traumatic Softening After Fracture of the Semilunar Bone.**—Gaza has recently encountered two cases of this rare affection of the semilunar bone of the hand. In both the Roentgen rays threw the first light on the clinical picture. Comparison with similar cases on record shows that the so-called traumatic softening is in reality a fracture, generally in the middle of the crescent and it is shown up instructively by the Roentgen rays only when they are applied in the radio-ulnar direction. Patches of lighter shadows are seen as the result of destruction at the time of the fracture or of absorption or abnormal deposits of lime. Later the bone may develop serious secondary changes such as occur in spongy bones elsewhere, the tardy result of injury, as, for example, in traumatic coxa vara, in Kümmell's kyphosis of the spine, after fracture of the heel, and possibly after Köhler's affection of the scaphoid bone of the foot. There may be a latent period of months or years after this semilunar bone fracture, and then the joint may develop a severe secondary arthritis and the only means of relief be removal of bones in the wrist with eventual interposition of a flap of fat in the gap left in the set of carpal bones.

66. **Prophylaxis of Epidemic Disease.**—In the course of these general remarks Nocht emphasizes the danger of transmission of disease by flies, saying that typhoid and dysentery seem to have a special attraction for flies. The English noted in their southern Africa campaign that when men with typhoid and with other affections lay in the tents, the flies collected on the typhoid cases and left the others in peace. He tells the story of a guest at a North Sea health resort who complained to the hotel proprietor of the hosts of flies in the privies, and was told, "You had better plan to go to the privy during meal-hours as the flies are all in the dining-room then." Nocht states that lime has not proved effectual for sterilizing manure, and a 25 per cent. solution of commercial ferrous sulphate seems the best disinfectant for this purpose.

67. **Tetanus.**—Jackobsthal remarks that the greater prevalence of tetanus among the wounded now in comparison to previous compaigns may be due to the more conservative treatment and to the digging of and fighting from trenches. The tetanus does not attack always the most severely wounded but only those with ugly, jagged wounds. He urges prophylactic injection of antitetanus serum on the firing line in cases of such wounds or all wounds soiled with dirt. The supply of antitetanus serum in Germany will not permit this at present, and he insists that more should be made at as many points as possible. "Even small private laboratories can make a satisfactory antitetanus serum that will answer for prompt prophylaxis, and horses should be supplied them for the purpose." He adds that he found tetanus germs in three out of seven specimens of the Indian fibers, *pengawar djambi*, which are sometimes used for dressing wounds. He examined this substance bacteriologically after knowing of

two cases of tetanus that had developed in patients whose deep wounds had been staunched with these fibers.

Therapie der Gegenwart, Berlin

October, LV, No. 10, pp. 409-428

72 *Epidemic Diseases during Wartime. (Kriegsseuchen.) L. Dunner.
73 *Synthesis of a Nucleic Acid. (Emil Fischers Synthese einer Nucleinsäure.) G. Klemperer.

72. **War and Pestilence.**—This article is a summary of a series of five postgraduate lectures on the diseases liable to become epidemic during the war. Kirchner emphasized the danger now from the lack of the previously enforced international exchange of information as to appearance and spread of epidemic diseases in other countries. Now we have merely rumors instead of accurate information as to the points in which the danger threatens. While the wounded are sent back to the home zone as rapidly as transportation can be secured, soldiers with an epidemic disease should be kept on the spot and not be despatched to the rear or the home zone. Isolation shelters can be erected almost anywhere, and provision made nearby for a sterilizing plant. The disposal of the dead and of dead horses is a problem that has not yet been satisfactorily solved. He advises to wait before vaccinating against cholera until cases of the disease actually occur as the immunity conferred is of brief duration. "The production of antiplague serum is a difficult and dangerous matter as the horses have to be inoculated with living cultures, and several of the workers in this line at Petrograd have lost their lives at the work." He adds that antidysentery serum is ineffectual in certain forms of the disease.

73. **E. Fischer's Synthesis of a Nucleic Acid.**—Klemperer states that the year 1914 will be memorable in science on account of the announcement of E. Fischer at the July meeting of the Prussian Academy of Sciences that he had succeeded in synthetically producing cell-nucleus substance. It is in the form of a theophyllin-glucosid phosphoric acid which crystallizes readily and is apparently a uniform chemical entity. The process is extremely simple, namely, by the use of dry pyridin and phosphorus oxychlorid, as is described in detail, as also the various properties of the synthetic nuclein. Fisher remarked, "The successful research in this line opens the way for synthetic production of many substances more or less closely analogous to the natural nucleic acids. How will they act on the living organism? Will they be directly assimilated and used in building up the cell nucleus or will the living organism reject them or break them down before assimilating them? Experimental research alone can answer these questions. I am audacious enough to hope that under especially favorable circumstances the assimilation of artificial nucleic acids can proceed without the splitting of the molecule. This, however, must lead to profound changes in the organism, changes which possibly may resemble those permanent ones observed in natural conditions, which we designate as mutations." Klemperer remarks in conclusion that the cooperation of synthetic chemistry with experimental biology may lead to new therapeutic achievements, especially in the treatment of gout, just as the treatment of diabetes was placed on a sounder basis by the discoveries which resulted in the synthesis of carbohydrates.

Wiener klinische Wochenschrift, Vienna

October 8, XXVII, No. 41, pp. 1343-1362

74 Diathermia in Gynecologic Disease. J. Kowarschik and H. Keitler.
75 *Parotitis in Barracks. (Mumpsepidemie 1913-1914 in der Garnison Graz.) W. Kulka and A. Neumann.
76 Notifiable Diseases in Vienna. (Die anzeigepflichtigen Infektionkrankheiten Wiens in den Jahren 1901-1910.) S. Rosenfeld.

75. **Mumps in a Garrison.**—Kulka and Neumann state that 293 of the 317 cases last year in the barracks at Graz were in one regiment while only a few scattered cases developed among the other troops although in close contact with them. Droplet infection is incriminated and convincing instances are related to prove this and also that direct transmission and the entire period of incubation can be comprised in twenty-four hours. In several cases, after an interval of from fifteen to seventy-five days, there was a new attack of the mumps or relapse. Orchitis developed in only 13 per cent.

Zentralblatt für Chirurgie, Leipsic

October 3, XLI, No. 40, pp. 1537-1560

77 *Pain on Pulling Right Spermatic Cord as Sign of Appendicitis. C. ten Horn.
78 *Resection of Stomach. F. Neugebauer.

October 10, No. 41, pp. 1561-1584

79 *Presternal Dislocation of the Clavicle. W. Danielsen.
80 Amputation of the Foot in the Field. (Ausführung der osteoplastischen Amputatio supramalleolaris im Kriege.) W. Levy.

October 17, No. 42, pp. 1585-1608

81 *Symptoms and Treatment of Fractured Patella. Haeberlin.

77. **Diagnosis of Appendicitis.**—Ten Horn found in twelve of the fifteen cases of appendicitis that traction on the right spermatic cord, seized just above the testicle, caused sharp pain. Pulling on the cord evidently drags on the parietal peritoneum at the internal inguinal ring and if there is inflammation this causes pain. The cremaster reflex is not to be relied on as a sign of appendicitis.

78. **Resection of the Stomach.**—Neugebauer expatiates on the advantages of Reichel's method of suturing the stomach directly to the jejunum after circular resection. He has applied the method in twenty cases with constant satisfaction, but instead of trying to join the entire cut surface of the stomach to the jejunum he sutures the upper two-thirds to close the stomach like a bag, and joins merely the lower third of the stomach stump to the jejunum. The stomach thus forms a wide bag tapering toward the wide opening in the bottom directly into the jejunum. By this method it is possible to resect even quite high ulcers on the lesser curvature, and yet have a broad enough base to the bag to join to the jejunum with an ample outlet for the stomach, as he shows in an illustration.

79. **Permanent Cure of Presternal Dislocation of the Clavicle.**—Danielsen quotes authorities to confirm his own experience that this form of luxation is easily diagnosed and reduced but that it is extremely difficult to keep it reduced, and pain and disturbed function inevitably follow. He declares that the principle of the usual method of correction by drawing back the shoulder is wrong. The shoulder should be drawn forward, not back. He applied this principle in a recent case with prompt and permanent cure of the trouble. To hold the shoulder in this forward position he lifted the arm and bandaged it so that the upper arm lay against the cheek, the forearm on top of the head.

81. **Diagnosis and Treatment of Fracture of the Patella.**—Haeberlin's experience in a recent case confirms in every respect the importance of Dreyer's sign of intact muscle apparatus with fracture of the patella. (It was described in The Journal, July 11, 1914, p. 206.) By excluding the action of the quadriceps by applying extension to the thigh, we can see at once whether the muscle is lacerated along with the patella. In the case reported the patella was fractured in falling from a wagon and the gap was almost one and a half fingerbreadths. The man was unable to extend his leg or raise it when passively stretched, even after an extension bandage had been applied to the thigh, thus confirming the assumption that the muscular apparatus had been torn across also. The operation revealed that this was the case in fact, but rapid recovery followed under extension and Kausch suspension.

Zentralblatt für Gynäkologie, Leipsic

October 3, XXXVIII, No. 40, pp. 1281-1304

82 *Gynecology and Obstetrics in Tropical Africa. (Frauenärztliches aus Deutsch-Ostafrika.) L. Deppe.

October 10, No. 41, pp. 1305-1320

83 Tent Dilatation. (Zur Anwendung und Erleichterung der Laminariadilatation.) A. Calmann.
84 *Asthenia-Enteroptosis. K. F. L. Kaiser.

October 17, No. 42, pp. 1321-1344

85 Anatomy and Pathology of the Menstruation Cycle. R. Schröder.
86 The Stem Pessary. (Zur Frage der Intrauterinstifte.) A. Goenner.

82. **Gynecology and Obstetrics in Tropical Africa.**—Deppe's district has the reputation of being one of the unhealthiest on the east coast; he found malaria parasites in the blood in 44.2 per cent. of 988 healthy natives examined last February. The total mortality among the 19,629 whites for this period was 2.4 per cent., namely, men, 2.8; women, 1.6, and children, 2.6 per cent. Of this total mortality 50.2 per cent. was due to tropical diseases. He comments on the importance of capable, healthy white women for the welfare of a tropical colony, as on them usually depends the efficiency of measures to protect against infected mosquitoes, contaminated drinking water and improper food and clothing. Sex does not seem to affect the liability to malaria, and evidence is accumulating that this applies also to climatic influences. Pregnancy seems to be carried a little past term, as a rule; labor is short and delivery easy, but Deppe's experience has been that an obstetric case requires closer supervision in the tropics than elsewhere. The fetal membranes rupture early and the unfavorable conditions in the tropics in regard to radiation of heat are liable to render the nervous system unstable. The physical cause should be sought; this may be the hyperemia of the abdominal organs, which is physiologic for the tropics. In conclusion he reiterates the importance of regular exercise for both men and women as this alone keeps the body at par in the tropics as well as elsewhere.

84. **Asthenia-Enteroptosis.**—Kaiser gives a historical review of the varying conceptions in regard to whether the viscera are suspended by their supports, "like clothes in a wardrobe," or whether "the ligaments merely determine their relative position while the abdominal pressure bears their weight" or whether they rest on organs and tissues below as on a cushion and would stay in place even if all their ligaments were severed. The surgeons and internists are still disputing on the subject, Rovsing pointing to his successful operations to suspend the organs better, while Faber claims that asthenia-enteroptosis should be combated by general internal medicine. Kaiser's view is that the internal conception is nearer the truth, but as it so seldom is systematically applied to bear fruit, surgical measures are more practical and are usually successful. In some cases there is undoubtedly a disproportion between an unusually large abdominal cavity and unusually small viscera. The heaviest viscera sink down the lowest, he adds, citing Mann's case in which the liver contained an abnormally high proportion of iron, and had sagged exceptionally low.

Zentralblatt für innere Medizin, Leipsic

October 17, XXXV, No. 42, pp. 937-952

87 War and Pestilence. (Verhütung und Bekämpfung von Kriegsseuchen.) P. Schmidt.

Gazzetta degli Ospedali e delle Cliniche, Milan

October 1, XXXV, No. 113, pp. 1233-1248

88 The Lipoid Substances of the Leukocyte Granules Seem to Be Phosphacids and Ethers. (Ricerche istochimiche sulle sostanze lipoidi degli elementi morfologici del sangue.) B. Nicola.

October 8, No. 115, pp. 1265-1280

89 Chronic Disease of Lymph Glands in the Neck. (Sul trattamento delle adeniti croniche cervicali.) A. de Castro.

October 11, No. 116, pp. 1281-1296

90 Sclerosis of Corpus Callosum of Gonorrheal Origin. C. Ortali.

Pediatria, Naples

October, XXII, No. 10, pp. 721-800

91 *Chloroma in Girl of Six. (Contributo clinico ed anatomo-patologico allo studio del cloroma.) G. di Cristina.
92 *Connection of Chronic Hydrocephalus with Inherited Syphilis. S. Cannata.
93 Lactose Content of Human Milk. (Concentrazione del lattosio nel latte di donna.) E. Palmegiani.
94 *Splenic Anemia in Children. (Etiologia e patogenesi dell'anemia splenica nell'infanzia.) G. Caronia.

91. **Chloroma in a Child.**—Di Cristina's little patient died the fifth month after the first sign of trouble, a tumor in the right orbit. Severe pains in the bones soon followed and necropsy showed that all the blood-producing organs had been involved in the pathologic process. The mother was tuberculous and the child gave a positive Wassermann reaction but there was no response to tentative specific treatment and there was nothing else to suggest syphilis in the child or family so that the reaction was most probably non-specific in this case. The blood findings resembled those of acute leukemia.

92. **Chronic Hydrocephalus and Inherited Syphilis.**—Cannata obtained a positive Wassermann reaction in only 10 of the 19 infants with chronic hydrocephalus he encountered last year, but application of the test to the parents gave positive results in 16 of the mothers and in 4 of the 10 fathers tested. One child and its mother gave a negative reaction but the father responded positively. In an additional group of 3 cases of chronic hydrocephalus the test was not applied as the parents were unmistakably syphilitic. These findings justify prompt treatment for inherited syphilis in every case of chronic hydrocephalus without waiting for the assumption of syphilis to be confirmed.

94. **Splenic Anemia in Children.**—Caronia has applied the Wassermann test systematically to the parents of the 30 children with splenic anemia in his service during the last twelve months. He obtained a positive response in 19 cases. The syphilis in the family was accompanied by tuberculosis in 9 cases; in 2 there was tuberculosis in the family without detectable syphilis. His experience confirms the assumption that still other causes may bring on splenic anemia in children. Chief among these probably is sepsis with a chronic course.

Policlinico, Rome

August 30, XXI, No. 35, pp. 1249-1280

95 *Restoration of Earning Capacity after Crippling Injuries. (Adattamento funzionale degli arti traumatizzati e loro valutazione.) S. Diez. Commenced in No. 33.

September 6, No. 36, pp. 1281-1312

96 Mental Disturbances after Injury of Frontal Lobes. G. Borsari.

September 13, No. 37, pp. 1313-1344

97 Diagnosis of Tumors in Corpora Quadrigemina. V. Bianchi.
98 Phlebitis in Undulant Fever. (Flebite nella febbre mediterranea.) P. N. Martelli.

September 20, No. 38, pp. 1345-1376

99 Diathermia. G. Pampiglione.
100 *Dilatation of Uterine Cervix in Treatment of Dysmenorrhea and Sterility. (Valore dell'operazione Bossi.) A. Zekete.
101 Necessity for Municipal Institutions for Treating Industrial Diseases and Injuries. A. Ranelletti.

September 27, No. 39, pp. 1377-1408

102 *Foci of Inherited Syphilis in the Province of Rome. R. Campana.
103 Salvarsan in Malignant Syphilis. R. Sacco.

October 4, No. 40, pp. 1409-1440

104 Nerve Grafting for Paralysis of the Larynx. (Trapianti nervosi nella paralisi dei nervi del laringe.) G. Serafini and O. Uffreduzzi.
105 Meat Poisoning and Paratyphoid. (Di alcune infezion alimentari specifiche.) T. Pontano.
106 Prophylaxis of Transmissible Diseases. (Profilassi delle malattie infettive.) U. Mariotti. Commenced in No. 18.

October 11, No. 41, pp. 1441-1472

107 Intermittent Cerebral Claudication. (Una varieta di claudicazione intermittente cerebrale.) G. Bianchi.
108 Abscesses in the Neck of Otitic Origin. G. Bilancioni.

October 18, No. 42, pp. 1473-1504

109 Behavior of Cerebrospinal Fluid in Acute Nephritis in Children. L. M. Spolverini.

95. **Workmen's Compensation.**—Diez is medical inspector of all the Italian railroads and has extensive experience with accidents among the employees and determining the pensions for disability. He reviews the various systems in vogue for this in different countries and discusses in particular the best means for stimulating a crippled workman to make the most of what functional capacity he has left. When he is assured of an indemnity proportional to the injury, he is interested in exaggerating his crippled condition instead of trying to overcome it. Diez expatiates on the necessity for institutions to train the crippled to overcome their handicap. Resumption of work is in itself, he says, a powerful aid in the cure for the majority of industrial accidents while loafing aggravates the functional weakness and increases the psychic incapacity

for work. He thinks the best plan is an indemnity for two or three years on a declining scale, to be forfeited unless the workman makes every effort to improve his functional capacity under proper training. The man knows that at the end of this period he will be left without income from this source, and hence he will have every inducement to become self-supporting in the interim. Unforeseen complications or errors in diagnosis may call for revision, but otherwise this plan—which is already working well in Switzerland for traumatic neuroses—seems very promising, he thinks.

100. **Dilatation of Uterine Cervix for Dysmenorrhea and Sterility.**—Zekete writes from Budapest to laud the fine results to be obtained by systematic mechanical dilatation in cases of stenosis, deformity or obstruction from any cause of the lumen of the uterine cervix. In eighteen cases the women had never conceived and menstruation was more or less painful. In six of the cases the mucosa showed signs of chronic inflammation or hypertrophy. The mucosa was curetted and touched with tincture of iodin and the intracervical stem pessary introduced and held in place by packing with gauze which was changed each day, inspecting each time to see that the instrument was in place. The patient stays in bed for eight days and continues to wear the endouterine pessary for twenty days in all. It was removed and cleansed two or three times and never caused the least disturbance of any kind. In the 20 cases treated for dysmenorrhea, complete success was realized in 16, the cervix becoming of normal size and shape and no longer opposing any obstacle to the menstrual flow, and in the others the former extremely severe dysmenorrhea has been very much improved. This systematic method of treatment corrects infantile conditions and anteflexion or both. In some cases the dysmenorrhea did not develop until after marriage.

102. **Foci of Inherited Syphilis in Rome Province.**—Campana states that in his expeditions into the rural districts to help in rooting out malaria he has frequently had groups of children brought to him for treatment of malaria who showed unmistakable signs of inherited syphilis. The promiscuous family habits and the custom of hiring out as wet-nurses have contributed to the spread of syphilis in the province. He cites a number of typical cases to emphasize the differential points and urges the necessity for specific treatment in addition to the treatment for malaria. He found signs of incipient myocarditis quite pronounced in a number, and the teeth were exceptionally fragile and malshaped even when they were not of the typical Hutchinson shape.

Tumori, Rome

July-August, IV, No. 1, pp. 1-128

110 *Etiology of Goiter, Cretinism and Deafmutism. (*Gozzismo.*) B. Grassi.
111 Tumors in Fish. (I tumori nei pesci.) V. Ronca.
112 Chronic Inflammation and Non-Malignant Tumors of the Breast. (Flogosi croniche e tumori benigni della mammella.) A. Cimorono. Continued.

110. **Endemic Goiterism.**—This is a free translation of Grassi's term *gozzismo* by which he designates the syndrome affecting persons in certain districts, the chief seat of the trouble being apparently in the thyroid gland, and the manifestations running a wide range of morbid conditions, chief among which are goiter, cretinism and deafmutism. He reviews the various theories in regard to the etiology, summing up his own view in the statement that there is no conclusive evidence to date that incriminates infection, contagion nor the drinking water. There may be multiple causes at work, he thinks, inadequate nourishment and ventilation, much contaminated waters and damp and dark houses. He lists the literature on the subject that has appeared in the last ten years.

Brazil-Medico, Rio de Janeiro

September 15, XXVIII, No. 35, pp. 333-340

113 Triatoma Transmitting Chagas' Disease. (Presença em uma localidade do Estado do Rio de um novo transmissor da molestia de Chagas encontrado infectado em condiçoes naturaes.) A. Neiva.

September 22, No. 36, pp. 341-348

114 Mycosis of the Lungs. (Oidium pulmoneum, n. sp.) O. Magalhães.
115 Abnormal Number of Aortic Valves. (Caso de anomalia numerica das valvulas sigmoideas da aorta.) O. Freire.

Russky Vrach, Petrograd

May 30, XIII, No. 20, pp. 705-740

116 **Phonoauscultation.* D. D. Pletneff.*
117 *Elimination of Iodin by Healthy and Diseased Kidneys. A. K. Sivert and S. Kaminsky.
118 Influence of Cholesterin on the Resisting Power of the Red Blood-Corpuscles. A. Z. Bilina and G. P. Chosroieff. Commenced in No. 19.

June 6, No. 21, pp. 741-772

119 *Preliminary Ligation of the Inferior Thyroid Artery for Strumectomy. N. N. Petroff.
120 The Pathology of the Will. S. A. Sukhanoff.
121 Present Status of Treatment of Tuberculosis. M. S. Kamneff.
122 *Tubercle Bacilli in the Blood in the Initial Stage of Tuberculosis and in the Healthy. I. N. Lopatin.
123 *Salvarsan in Treatment of Surgical Syphilis. G. A. Ivashenzoff and V. A. Lange. Commenced in No. 20.

116. **Phonoauscultation.**—Pletneff applies this term to auscultation with a tuning-fork and stethoscope or phonendoscope. The tuning-fork is placed over the organ to be examined, and its vibrations are listened to through a stethoscope or phonendoscope placed on the same organ. The tuning-fork is gradually moved along from the neighboring organs to the one to be examined, and when it reaches the latter an increased and louder resonance is perceived. With this method the stomach boundaries can be easily differentiated from those of the intestines, the boundaries of the lungs can easily be determined, also foci of infiltration in the lungs. Pleuritic effusions, etc., change the resonance. It can be used not only to outline different organs but also to distinguish diseased conditions in them.

117. **Elimination of Iodin by Healthy and Diseased Kidneys.**—Sivert and Kaminsky report that six healthy persons were examined and it was found that healthy people rapidly eliminate iodin, the average proportion being 77.9 per cent. of the total amount during the first twenty-four hours. During the second twenty-four hours the amount of iodin eliminated is from 15.5 to 19.6 per cent. of the dose taken, while during the next twenty-four hours the elimination of iodin stops altogether. Only about 5 or 6 per cent. of iodin remains in the body, or is eliminated by other organs. The elimination does not seem to depend on the amount of urine voided. In the patients with pathologic kidneys examined there were 5 with acute and 2 with chronic parenchymatous nephritis, and 4 with chronic interstitial nephritis. In parenchymatous nephritis the elimination of iodin by the kidneys is rapid and complete, the average proportion being 81.9 per cent. of the amount taken. Of this amount 70 per cent. is eliminated during the first twenty-four hours. No difference was noted in this respect between acute and chronic parenchymatous nephritis which thus resemble healthy kidneys in regard to the amount of iodin eliminated. In 4 cases of chronic interstitial nephritis the amount of eliminated iodin is markedly decreased, being 17 per cent. instead of the normal 70 or 80 per cent. The duration of the iodin elimination is considerably prolonged, sometimes for five or six days. The test dose was in all cases 1 gm. of potassium iodid given after a meal. The authors think that the nature of the renal trouble can thus be determined from the proportion of iodin eliminated. If this is below 70 per cent. it indicates an interstitial process.

119. **Ligation of the Inferior Thyroid Artery for Strumectomy.**—Petroff warmly recommends De Quervain's method of ligating the inferior thyroid artery before operating on the thyroid gland. This renders the subsequent course of the operation comparatively bloodless. Petroff used this method on fourteen patients in one year—all under local anesthesia plus epinephrin. Ten minutes was sufficient to find and ligate the inferior thyroid artery. Once he was unable to locate it. The strumectomy was done when the upper thyroid was also ligated. The inferior artery is ligated only on one side, as bilateral ligation might endanger the nutrition of the parathyroids. Complete recovery was the rule in from six to thirteen days.

122. **Tubercle Bacilli in the Blood in Incipient Tuberculosis.**—Lopatin found tubercle bacilli in the blood of only 6 of 26 patients in the initial stage of tuberculosis or only suspected of this, but there were numerous acid-proof bacilliform formations that could be easily mistaken for real tubercle bacilli. Positive results from inoculation of guinea-pigs were obtained in 9 cases out of 16 that showed signs of initial tuberculosis. Of 10 patients that did not show clinical signs of tuberculosis, only in 2 cases could tuberculosis be demonstrated in the guinea-pigs. This method is reliable provided the tissues of the animals show characteristic changes. Bacillemia thus occurs in about 60 per cent. of patients in the initial stage of tuberculosis.

123. **Salvarsan in Surgical Syphilitic Lesions.**—Ivashenzoff and Lange treated with salvarsan and neosalvarsan sixty patients with gummatous syphilis of nose, throat, pharynx, larynx, skull (2 cases), tibia, penis, sternum, joints (tabes), syphilitic osteomyelitis or periostitis. The doses for salvarsan were 0.5 to 0.6 gm. for weekly intravenous injections, followed sometimes the next day by an intramuscular injection of 0.4 to 0.5 gm. The dose for neosalvarsan was 0.75 to 0.9 gm. Sometimes the patients felt much improved from one to two injections, especially with lesions of the nasopharynx or larynx. The voice that for years had been lost would clear up, and the breathing become free, rendering the use of the tracheotomy tube superfluous. The success in the treatment of nasal lesions was so striking in some cases that rhinoplastic operations could be postponed and rendered more efficacious as the tissues became stronger and more vital. The same excellent results were obtained in the rest of the above mentioned lesions. Complications are liable but with the proper technic and dosage they are comparatively rare.

Hospitalstidende, Copenhagen

October 7, LVII, No. 40, pp. 1225-1248

124 *Operative Treatment from Without of Intralaryngeal Cancer; Thirty-Three Cases. (Resultaterne af den operative Behandling —Laryngofissur—af den intralaryngeale Cancer.) E. Schmiegelow.
125 *Operative Treatment of Diffuse Lipomas of the Neck. (Et opereret Tilfælde af Madelungs Fedthals.) E. Gjessing.

124. **Intralaryngeal Cancer.**—Schmiegelow's report on sixty-six operative cases of cancer of the larynx was presented at the Clinical Congress of Surgeons held at London last July. He emphasizes that in by far the largest proportion of cases the cancer started in the vocal cords, and that cancer of this origin is more readily and completely eradicated while it induces hoarseness almost from the start and is thus detected early. The growth besides is unusually slow. An exception to the grave prognosis with other forms of cancer of the larynx is the pedunculated adenocarcinoma growing from the superior aditus laryngis. In his total 66 laryngeal cancer cases, 5 were removed through the mouth but 4 succumbed to recurrence, 10 died from recurrence without an attempt at operation, and 8 died in the 8 cases treated by means of tracheotomy and also in the 1 case treated by subhyoid pharyngotomy, 4 by partial resection and in all but 1 of the 9 treated by total resection. In the 33 cases in which the cancer was removed by thyrotomy, 18 of the patients were cured; 5 succumbed to pneumonia and 10 to recurrence. The interval after the operation has been from ten to eighteen years in 4 cases; from three to nine years in 9 cases and two years in the others. Two of the patients died from a cancer in rectum or stomach eight and eighteen years after the operation and at the necropsy the larynx was found clinically normal. He compares these results with those reported by Semon (24 cases), Chiari (29) and Thomsen (10)—a total of 96 cases of thyrotomy technic applied to laryngeal cancer, with 61 surviving for more than a year, that is, over 63 per cent.; 9 did not long survive the operation and 25 succumbed to recurrence.

125. **Operative Treatment of Symmetrical Lipomas of the Neck.**—Gjessing's patient was a man of 50, healthy until he became addicted to liquor a few years ago. Treatment for a gastric ulcer has been required recently. The lipomatosis had been developing for sixteen years. The huge lipoma encircling the entire neck was excised at two sittings, with an eighteen-day interval, and although there was some suppuration from the wound at first the results were excellent. Removal of the lipomas is a comparatively tedious procedure but the mortality is zero. In some cases on record the cure was permanent; in others there was great relief for a long time although there was recurrence later.

Hygiea, Stockholm

LXXVI, No. 18, pp. 1009-1072

126 *Treatment of Exophthalmic Goiter. (Till frågen om behandlingen av morbus Basedow och särskilt om indikationerna för operationer å glandula thyreoidea vid denna sjukdom.) K. Petren.
127 Measles in Infants; Thirty-Three Cases. (Mässling hos späda barn.) A. Lichtenstein.
128 Muscular Work from Heat and Energy Standpoint. (Om muskelarbetet från termodynamisk synpunkt.) O. Ottosson.

126. **Treatment of Exophthalmic Goiter.**—Petren discusses in particular what indications in exophthalmic goiter call for surgical treatment and comes to the conclusion that the cardiac symptoms are the criterion for this. None of the other cardinal symptoms is constant enough to base the indications on it. But the almost delirious heart action is a futile waste of energy and a source of permanent injury. The palpitation and the rest of the excessive action of the heart lead to a compensating hypertrophy and dilatation, and may finally wear out the heart from the overstimulation of the sympathetic from the hyperthyroidism. As this is the most serious element of the Basedow clinical picture, in his opinion, he bases on it the decision whether to operate or not. When the heart is already enlarged and does not subside under medical treatment or the heart symptoms show no marked improvement, an operation should be undertaken. It may also be indicated if the mental or moral nature is changed. In the majority of cases the disease is mild and subsides more or less completely under medical measures. The patient should be kept systematically in bed. The latest reports on serum treatment, especially with milk from thyroidectomized goats, have not been encouraging, but Petren himself has had occasional good results from it. He has also obtained good results from carbonated baths and electricity to the nerves in the neck. The carbonated baths had an unmistakable soothing effect on the rapid heart action. Hot and cold baths might aggravate conditions.

Ugeskrift for Læger, Copenhagen

October 1, LXXVI, No. 40, pp. 1721-1766

129 *Potassium Iodid Test for Carbon Monoxid in the Blood. (Metode til Paavisning af Kulilte i Bloder.) K. Sand.
130 Average Food Ration in Denmark. (Danske Familiers Forbrug af de enkelte Födemidler.) M. V. Bjorum and P. Heiberg.

129. **Detection of Carbon Monoxid in the Blood.**—Sand states that when halogens are added to blood the oxyhemoglobin is transformed instantaneously into methemoglobin, and the color changes with this from red to brown. When the blood is under the influence of carbon monoxid, the hemoglobin resists the halogen and there is no change in tint. His various experiments have shown that in the form of a solution of 1 part iodin and 2 parts potassium iodid to 300 parts distilled water this inhibiting phenomenon occurs with special force. He utilizes this to detect and estimate any proportion of carbon monoxid in the blood. The iodid solution is added to a set of test-tubes containing each 10 c.c. of normal or the suspected blood, until in the control tubes all the oxyhemoglobin has been completely transformed into methemoglobin, as evidenced both by the tint and spectroscope. The same number of drops is then added to the corresponding tubes of the suspected blood. The reaction occurs down to a content of 0.25 per cent. carbon monoxid and below; 0.125 per cent. seems to be the limit. The best results were obtained with the blood diluted to 2 or 3 per cent. He says that the color reaction occurs earlier and is more distinct than with other technics, and it is four times as sensitive, revealing as little as 5 per cent. carbon monoxid content. When the blood is at a temperature of 20 C. the reaction occurs instantaneously. This technic permits also spectroscopic control with the same specimen of blood.

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. LXIII, No. 22 CHICAGO, ILLINOIS November 28, 1914

SERVICES TO BE EXPECTED FROM THE PSYCHANALYTIC MOVEMENT IN THE PREVENTION OF INSANITY *

JAMES J. PUTNAM, M.D.
BOSTON

I understand that the problem before us for discussion is, How can we best help people to preserve their mental health? and that my part in it is to answer the particular question, What contribution can psychanalysis make toward this end?

I shall confine my remarks almost exclusively to this one point of prevention, resisting the temptation to wander at length over the wider field of the mental treatment of patients who have actually shown distinct symptoms of one or another form of the psychoses.

It is, however, germane to say that inasmuch as psychanalysis is best definable, from the therapeutic point of view, as an educational method of high value, and since, under all circumstances, it exerts its usefulness largely through helping the patient to become a more thoughtful, more rational, and more mature person, the aims of prevention and the aims of treatment are to a great extent the same.

It is also proper to point out that the psychanalytic literature contains very encouraging reports, indicating not only that the temperamental tendency to depressive states, but even the tendency to recurrent manic-depressive outbreaks, can sometimes be affected favorably by this treatment; and that there is some evidence that patients with dementia praecox in its initial stage can occasionally be benefited in the same manner.

It is my confident belief that the contribution of the psychanalytic movement to prevention is to become an important one, but that it will make itself felt not so much directly, through the treatment of individual patients, as indirectly and gradually through the stimulus which these searching studies into the nature and history of human motives must exert on parents and educators, in proportion as the principles discovered or emphasized by them become an integral part of psychologic doctrine.

To assert that it is possible to prevent or cure a psychosis by mental influence is equivalent to asserting the psychogenic origin of these diseases. To maintain this is not to deny that special toxic influences, general disorders of metabolism, or abnormalities of cerebral structure or development may play an important part as predisposing causes, or even that the influence which these causes exert in one or another case may have been the controlling influence, *sine qua non.*

It is, however, certain that even where this is so, the mechanism of the psychosis, as a mental phenomenon and as the sign of the occurrence of a mental process having a more or less clearly definable aim and meaning, ought to be specifically studied, and that in order to do this thoroughly the physician should have made himself aware of the patient's inner life, both as an individual and as a member and representative of a social group or social groups.

The psychoses and psychoneuroses are not to be regarded (psychologically) as mere misfortunes or mere accidents, but as phenomena that represent definite, instinctive attempts at readjustment and the securing of some workable equilibrium, on the part of persons whose actual adaptation to their environmental conditions had proved unsatisfactory in the face of this or that special strain, and whose powers of readjustment had shown themselves inadequate to the task of restoring the disturbed balance in any better fashion. This view is in harmony with that of Meyer, Hoch, Bleuler and others who have stood for a partially psychogenic origin of the psychoses, and have recognized that the constitutional and temperamental make-up of each patient's personality is partially responsible for his illness, or, as I should say, for the method which he instinctively adopts to reassert himself. The psychoses form, in short, one more illustration of the general principle that illness may be classified as the manifestation of efforts toward a certain sort of health.

It is no valid argument against this view to say that the outcome of these efforts, from the clinical and social standpoint, seems anything but desirable. The "desirability" depends, as a rule, only on the satisfaction of the patient's unconscious cravings; but in this sense his illness may secure him something which, with one portion of his nature, he may be said to wish for.

There are times when, from this point of view, a fit of anger fills, psychologically, a useful purpose—then, namely, when it makes the rational thinking which the angry person does not wish to use, or cannot use, seem so impossible that no one asks him to attempt it. Similarly, when a wife's hysteria gains her the attentions of her otherwise inattentive husband, it fills, from the standpoint of her deeper longings, an important place. And the process is, for her, all the more "desirable" if it works without any conscious acquiescence on her part.

---

* Read before the Section on Nervous and Mental Diseases at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

It is believed by those who accept the explanation offered by psychanalysts[1] that the difference in mechanism between the psychoses and the psychoneuroses is one (from the psychologic standpoint) mainly of degree. Leaving wholly aside the problem of physical or chemical influences (not by any means as unimportant, but as not germane to this particular discussion) it may be said that in the case of the psychoses the patient's emotional interest and attention is engrossed in his complexes to such an extent that he becomes submerged in them. The "gain" to him through this process is to be reckoned, as already stated, in terms of the fulfilment of an instinctive but unacknowledged attempt to escape from an intolerable emotional situation, or else to satisfy an unconscious craving.[2]

It is of no importance, as a counter argument, to say that this complex process of readjustment (the details of which I do not attempt to indicate here) would never have taken place but for the presence of a physical "disease-process" in his brain or elsewhere.

Let this be proved by all means if it be possible; or let us admit, as with Hoch, that the brain-cells may be undeveloped. We are not questioning or studying these facts, but are studying only the mechanism of the patient's attempts to find an equilibrium of a new sort.

This principle that the psychoses and neuropsychoses come into existence because they serve a purpose, has been discussed so often that I ought perhaps to assume it as granted, and pass on; but its recognition is so important for the prevention of the psychoses, that a few words of further explanation may not be out of place, the more so that the doctrine here at stake is distinctly an outcome of the psychanalytic movement.

It seems at first sight almost impossible to get away from the patient's conscious point of view, and to deplore with him and his friends, as if for a misfortune without mitigation, the signs of an oncoming mania or depression or paranoia or dementia praecox. But if, through the aid of knowledge and insight, one can succeed in placing oneself in the depths of the patient's mind, at the center of his vain struggles to make the conditions around him square with his desires, even though these be immature and narrow, it becomes possible to see that his illness may have furnished him a real way out of his perplexity, even if not the one that we, looking on, or he, if possessed of full conscious insight, might have wished to see adopted. The justice of this conception becomes clearer if one scrutinizes, to begin with, the psychologic significance of one's own fits of temporary depression, of the "blues." Whatever else the "blues" accomplish, they certainly afford us the chance to bury ourselves in an ocean of self-engrossment, self-pity or self-commendation in which we may become for the time being almost as thoroughly immersed as a dementia praecox patient in his delusions. The difference lies in the power of emergence and its special causes.

I have recently followed with great interest the gradual transition of a reactive outbreak of depressive self-pity, excited by a misfortune in business, into as severe and prolonged and typical a melancholia as one could wish to see.[3]

It occasionally happens that a patient with obsessive fears is intelligent enough (after a certain amount of treatment) and frank enough to see and say that in some respects he feels better satisfied with the prospects offered by his dissociation than by those offered by health; then, namely, when to be well means the facing of situations and renunciations that he is unwilling to contemplate. The only alternative recourse seems to be suicide. As a rule, of course, the logic of the process is concealed from his conscious view. Such persons are somewhat like children, who learn to create, in fancy, a separate realm of feeling and fancy, to which they may retreat[4] for the private enjoyment of emotions in which the other elements of their nature do not permit them openly to indulge. In this realm of fancy the child may become for the time a king, or a being to whom all sorts of excesses of imagination are permissible. If, however, he stays in this realm too long, the return into a life of relative reality[5] and social responsibility may be attended with difficulty. The justification of this comparison only becomes clear when (as sometimes in dementia praecox or paranoia) it is possible to get at the patient's delusions from their deeper and, to him, better side.

What such a child does for a brief space, when he withdraws into this delightful world of fancy, peopled, it may be, by beings from some other sphere,[6] the paraphrenic (i. e., "dissociated" or schizophrenic) patient may — in the terms of this important theory — be said permanently to do. And, *mutatis mutandis,* similar statements may be made for manic-depressive and for paranoid patients. Such persons may, namely, become in different degrees and ways, so preoccupied with the details of their "autistic" life, even when, to the untrained eye, this does not appear to be the case; they may get so immersed in their fantasies and day-dreams that they lose touch, to a greater or less extent, with the life of relative reality. During a period of many years I have had the chance to watch a young girl[7] who, although still able and even brilliant in certain intellectual lines, has been gradually sinking into such a life of fantasy, in which secret marriages, pregnancies and miscarriages play prominent parts.

We are too apt to define each other's tendencies in terms of misfortune, weakness, deficiency and lack. This procedure is misleading. There is really nothing negative in nature. If a plot of ground does not grow grass, it runs to weeds, but the weeds are as positive in their nature as the grass and often more resistive to destruction.

---

[1] See especially, as making clear the grounds for this mode of reasoning, Jung's now classical study of dementia praecox (published in English as one of the monographs of the Jour. of Nerv. and Ment. Dis.), Freud's investigation of the Schreber case of paranoia (Jahrbuch für Psychoanalytische u. Psychopathologische Forschungen, iii, 9), Abraham's study of manic-depressive insanity (Zentralblatt für Psychoanalyse, ii, 302. See also the brief but excellent study of the psychoses by Bernard Hart entitled "The Psychology of Insanity").

[2] The term "unconscious," as here used, indicates the absence of selfconscious awareness only.

[3] No psychanalytic treatment was attempted or would have been practicable. After the attack is fairly over it should be used for the prevention of a second attack.

[4] Compare Bleuler's *Das Autistische Denken,* Jahrb. für Psychoanalytische und Pathologische Forschungen, iv, 1.

[5] I say "relative reality," because even the most conventional and usual sort of life gets its form and color from the imagination of each individual. Each person's world is, in part, his personal world alone.

[6] I have a patient at present in mind, of good intelligence, but small in stature and timid in temperament, who suffers both from depression and from compensatory ideas of courage. All his life long he has gained great satisfaction from day-dreams of power and prominence. Even at the present time, when he is about 22 years old, he occasionally imagines himself to be a supernatural being, wandering through space in the skies or "talking with God," and dreams of driving a four-horse sleigh or piloting a swift boat into that unknown world from which, in reality, he shrinks.

[7] She entirely refused treatment.

Life may often be said to consist in the gradual (at times apparently sudden) abandonment of equilibriums which had sufficed well enough up to a certain point, in favor of new and more insistent equilibriums that loom up as representing, as the case may be, a more advanced (sublimated) or a more regressive (infantile) but seemingly more stable stage of evolution or of evolutionary tendency.

It is in the terms of this process that the history of the psychoses should be written.

It is important to recognize that this substitution of new equilibriums for old ones often concerns, at least in the first instance, not the whole personality, but only a part of it, and that in proportion as this happens the individual loses his unity and becomes relatively dissociated.

Also, and by the same token, the process may go on to a great extent without the active or even passive intervention of the consciousness and the constructive imagination, although these powers might, if properly trained to the work, be counted on to lend powerful assistance to the maintenance of the mental unity and to the binding of the forces of the past (which in a certain sense still lives) into one coherent whole with those of the self-foreshadowing future.

These two facts — that the mentally unbalanced person[8] is "dissociated," i. e., subject to two or more sets of strongly conflicting motives, and that this happens without the intervention of consciousness — which, however, might intervene with profit, at least in a certain proportion of the cases — are to be considered as of fundamental significance.

It is the function of psychanalysis to see that consciousness comes to its rights and is given its due share in the determination of the result.

I have, however, been led by my experience to believe that patients with oncoming psychoses, several of whom I have watched with interest throughout the gradual development of their illnesses, are very tender plants and need to be handled by psychanalysts (as by therapeutists of all sorts) with extreme care.

I also sympathize heartily with the view expressed by several experienced observers,[9] that similar care, as well as great patience and friendliness, are essential, if one wishes to do good and avoid harm in dealing with neurotic children by the trenchant weapon of psychanalysis.

But to say this is to broach the subject of prevention; and before speaking on that point I wish to discuss a little further the general claims of mental influences to be considered as both causative and curative, in theory at least.

It is obvious that the questions which are before us for consideration would never have been asked unless the belief was somewhat prevalent that the degree of liability of any given person to fall a prey to mental disorders of one or another sort was in a measure dependent on the mental influences to which he had been previously subjected. As a matter of fact, I suppose that all physicians tacitly assume this proposition to be proved, if not, indeed, self-evident — even those who would think that we ought to look for the final causes of the psychoses in brain-changes, of toxic or degenerative or hereditary origin, and who would reject the formal assertion that a purely psychogenic basis for these disorders was conceivable.

But if it makes even some difference as regards his liability to insanity, as to what mental environment a person has been subjected to, then several important inferences follow:

In the first place, if the psychoses are even partially of mental origin — i. e., "psychogenic"— who can say how far this may or might be true?

An adequate explanation, satisfactory to all disputants, of the exact etiology and nature of these serious mental disorders will, to be sure, never be furnished until the time arrives when the nature of the relationship between the body and the mind is expressible in clear and comprehensive terms.

This is largely a philosophical problem,[10] and as such cannot be discussed here. I venture nevertheless, to assert that but few students of philosophy would to-day get warm over the particular difficulty that confronts us and that forms a real stumbling block to a certain proportion of physicians. Most such students would surely encourage us to believe that a psychogenic etiology is, theoretically, just as admissible as a physical or an hereditary or a chemical etiology.[11] But when one says "psychogenic etiology," one should be understood as including all that that term implies to the man who uses it. If he believes that all mental phenomena have their physical aspect or that they are hereditary, then "psychogenic" means for him, in so far, "physical," etc. If he does not believe this, then "psychogenic" means for him purely mental.

Both practical and scientific considerations justify us in accepting as genuine any causes which *seem* to lead to these disorders, provided only that they are not reducible to simpler, more manageable terms.

One thing seems to me certain: While it is true that those who study the psychoses as diseases of the brain can count on the powerful aid of chemical and histologic tests, it is equally true that those who, on the other hand, prefer to emphasize the psychogenic aspect of this etiologic problem have the great advantage of placing themselves squarely in the position of the patient who is striving to find himself and to realize his destiny on the battle-ground of social life.

But I pass, now, from the consideration of the mechanism of the psychoses and the needs of the distinctly neurotic child to the subject of preventive education in the stricter sense, as applicable to children at large, whether at home or at school and whether sick or well; and I attempt again to answer the question, What contribution has psychanalysis to offer.

As I have already indicated, this contribution will perhaps always be mainly an indirect one. I propose nothing so insensate as that parents, or even teachers, should practice psychanalysis; but I maintain that this branch of medicine has something to offer to parents, more to teachers, and a good deal to the family physician. All these classes of persons need to have their own points of view reformed before they attempt to form the character of the child. They need a wider comprehension than that which has been current hitherto, as to what the psychologic nature of the child is, and what his purposes and his dangers are, as expressed in terms of his conflicts, his concealed and repressed thoughts, feelings and desires, and his so often misused imagination; and they need to have this knowledge on the basis of a thorough acquaintance with the psychology of human nature in general, as gained through clinical research.

---

[8] Provided that his disorder is of one of the types here in question.

[9] Compare Internationale Ztschr. f. Aerzt. Psychoanal.

[10] For the most recent discussion of this problem, from the points of view of philosophy and physical science, see the Concept of Consciousness, by Prof. Edwin Holt, Harvard University.

[11] This applies even to the psychoses of periodical recurrence and relatively long duration. It is hard to explain these periodic recurrences on any hypothesis. But it is hard also to explain the recurrences of the seventeen-year locust pests.

Needless to say I do not claim that psychanalysts have, at present, surpassing claims to recognition as physicians, educators or parents. The qualities required for serving in these capacities are numerous, and those which nature and instinct provide may, at their best, be more valuable than those gained through any kind of training whatsoever. No innate capacities are, however, so good but that they can be made still better by study and by knowledge.

In the first place, I think our current standards of conduct, and of thought as related to conduct, inadequately reflect the best conceptions of the ultimate goal of education and of life. Of course there are vast numbers of persons to whom this proposition is not applicable to any practical extent, and the proportion of these to whom it does not apply is doubtless particularly large among educators.

I presume it will hardly be disputed that the kind of person who most completely fulfils his destiny is he who looks on himself not only as a private and independent individual, but also as at once a member and a representative of the community in which he lives, then of a widening series of communities, and eventually of an ideal and all-comprehensive community. This proposition was long ago made the basis of the educational system of Froebel[12] which should be accepted as offering the best prophylactic method at our command, applicable to all children, though its influence might easily go for nothing unless reinforced by that of the child's environment and home.

But although definitions of this sort are generally accepted as indicating theoretically a suitable scheme of human opportunity and obligation, yet the observation of human conduct leads to the conclusion that the sentiments corresponding to them do not exert the thoroughgoing influence that one might look for. Obviously, these sentiments are but imperfectly accepted by some portion of the minds of most men. The very prevalence of the psychoneurotic illnesses and of the corresponding defects of character and temperament from which all men suffer in some measure, indicates that this is true. For many of these forms of illness, as well as many of the defects of character, are largely based on the self-assertion of the individual in the narrower sense, with his demand for personal "rights," and his (largely infantile, and thus selfish) longings and cravings, as against the assertion of his broader, his ideal self, recognizant rather of obligations to the community and of capabilities for usefulness than of rights.

I blame no one for this situation, and least of all do I bring an indictment against nervous invalids as a class, most of whom are handicapped and narrowed only by virtue of a necessity of development or evolution, against which they may have contended with all the force and light at their command. But the facts are so; and if it be asked what classes of persons it is that most often, even under conditions of the severest strain, escape the toils of invalidism, and of the sense of isolation that goes with it, it may fairly be said that they comprise, first, the persons of high grade such as I have just described,[13] who are able thoroughly to learn the lesson of "sublimation," perhaps because they were so "set" by nature and so favored by their environment that they could learn it easily; next, those who are so constituted—whether by inheritance or by training—that they fit adequately into the conditions by which they find themselves encompassed, and are not hampered by the visions of unattainable ideals.

It will be understood, of course, that I would classify as high-grade not only those persons whose native powers of reason and intuition, unhampered by serious defects, have been such as to enable them to grasp and define the doctrine of loyalty in its most highly developed and rational form, but all persons who are genuinely loyal to such ideals as they see. It is, in fact, this quality of genuineness that is controlling and indispensable as a factor in education and in life.

It may be urged that psychanalysis does not take the cultivation of social ideals as an end for which it should directly strive. Technically, this is true. But psychanalysts know well the evils that attend the overassertion of personal desires, cultivated too exclusively in and for themselves, and the importance of the opposite course follows by inference. The primary task of the psychanalyst is to remove handicaps to progress, but only in so far as these give rise to painful conflicts in the mind. They can, however, see and should endorse the schemes of education by which these handicaps are best avoided.

Doctrines of this sort cannot, obviously, be preached to young children, either at home or school, with any prospect of considerable benefit. If too strongly reminded, even of their social obligations and opportunities, children are likely either to react by a revolt, or to develop a hypocritical tendency, both of which results indicate the activity of that very repressive and dissociative tendency which is so objectionable.

On the other hand, teachers, parents and physicians can appreciate these principles, testing the genuineness of their beliefs, if necessary, by psychanalytic methods, and through them strong influences of the best sort can be brought to bear on the children under their charge. The best teachers do this already, but the background of intelligent cooperation should become more effective.

The steady progress toward sublimation of those individuals whose developmental tendencies are of the best sort, seems to indicate that they instinctively cultivate (in modes conforming to their age), even from the moment of their birth, the powers and pleasures which seem most personal and private, with reference to a social outcome which is soon seen to imply a loyalty to communities or social groups that exist for them only in an ideal sense;[14] while those who fail to instinctively seek this outcome are apt to exhibit, in a negative sense, a dim recognition of the binding force of these social obligations, by developing tendencies which are positively asocial or antisocial in their significance.

---

[12] Froebel: The Education of Man; see also Report on the Kindergarten by Susan E. Blow and others.

[13] This statement might be considered as misleading, but it is difficult to cover every contingency in a brief space. I do not, of course, mean to deny that nervous invalidism is to be found, perhaps to a considerable extent, among persons devoting themselves unselfishly to the public welfare. Of course, among persons of this class, as among others, innate differences of endurance are found, and specific tendencies of a neurotic sort may happen to develop. What I mean to say is that in so far as the ability to lose oneself in one's job, whatever this may be, acts as a steadying and wholesome influence, this influence is likely to be more far reaching in proportion as the job in question enlists tendencies of genuine disinterestedness, and makes it possible to put aside considerations of purely personal, as contrasted with social, interest.

[14] Compare Royce's Philosophy of Loyalty, and numerous other publications by the same writer.

Even the study of the sex life finds its most important bearing in its accentuation of the fact that man belongs to society in a sense deeper than commonly appears; that the family and, in general terms, the group should be considered as the unit, rather than the individual.

We ought to work for the maintenance of those educational systems and principles that help children first to feel and then to see that every man is most truly himself as an independent agent when he feels himself bound to merge his private interests in the interests of persons and causes outside of himself. But this tendency should go, in word and conduct, no further than it is expressive of a genuine sentiment.

Social sentiments of this better sort and the conduct based on them should not be regarded as implying standards seldom to be reached, but rather standards to which many persons might measurably attain. Children, especially, are natural idealists and respond to appeals which adults often dismiss as idle.

As illustrative of the kind of service that education can sometimes render, even to very young children, through planting the seeds of the broader sense of social obligations which is so favorable to mental solidarity and health and so hostile to the dissociation that is brought about by repression I will mention an observation, superficially trivial, but suggestively important.

A small child, who had fallen into habits of theft, became strongly captivated by the idea, which was carefully presented to him, that he could take "with his eyes," instead of with his hands, the things that he longed to appropriate, and thus gain, ideally, the satisfaction of possession, reinforced by the gratification of satisfying a dim social ideal, although obliged to renounce the pleasure of exclusive ownership,[15] with its denial of the social principle. Subsequent developments indicated that this discovery, which appealed, perhaps, primarily, to his imagination only, helped to effect a real change of temperament.

The educational system that has elaborated most thoroughly the methods of inducing or emphasizing this community sentiment as a goal of progress and has placed them on a practical footing for children between 4 and 6 years old, is undoubtedly the kindergarten system of the great thinker and educator Friedrich Froebel. Kindergartens do not by any means always come up to his ideals, but one cause of this lies in the failure of parents and their advisers to recognize the part which this system aims theoretically to play, and in their failure to give an adequate support to those who are working toward this end.

It is, however, not enough to admit the importance of a general preparatory training of this sort, even if it could be supposed that its principles were to be emphasized through the discipline of the home.

Each child has his own special needs, to be met by appreciative sympathy, direction and correction, and these needs are to be best understood when they are studied in the light of a knowledge of those to whom the tendencies to repression, dissociation and ambivalence have gone on to a more or less excessive degree.

A certain amount of repression, dissociation and ambivalence seems to be an inevitable attendant of competitive existence; but it has not been appreciated until recently at what an early stage in the child's life these tendencies may appear. It is true that, with the majority of children, neither repression nor dissociation, nor the tendency to primary or reactive emotional excess that leads to these results, is developed to any very objectionable extent. Children of the best sort, no matter how childlike and, for a time, immature their traits may be, appear to be marked by a characteristic quality that stamps every act as belonging in part to a maturer future of which it may be said to be prophetic, while, perhaps on that very account, it appears also to belong peculiarly to the present moment.

Nevertheless, the pitfalls into which so many children actually stumble (not so much because they are degenerate in the sense of having progressive brain defects, as because their power of adaptation is insufficient for the requirements of life in a given environment) should be recognized as standing open for even the most broadly adaptable child. The earliest years of all children are years of self-engrossment, the finding of themselves in the sensations that attend their reflex acts, their impulses, the recognition of their powers, desires and fears, and as reflected in the attention of their parents. And this period is beset from the outset with the danger that these new-found gratifications and excitements will be taken too exclusively in and for themselves.

The engrossment of these primary, primitive and elemental pleasures — which soon become modified by the comparisons which children institute between themselves and others, and the instructive discovery of their capacity for compensations and over-compensations — is then more or less superseded by the engrossments of their powers of fantasy, through which the unpleasant realities of the social life, for which they are still unprepared, can be shoved off for a time, in the interest of a more unified life of imagination.

Hand in hand with this tendency comes the recognition of the possibility of repressing what is too distressing, coupled with that of preserving the pleasurable aroma even of excitements that might be reckoned painful.

And here begins the double life of which every child lover should be able to see the traces and the dangers, and also, it should be said, the possibilities of added usefulness.

Children outgrow, it is true, vast numbers of habits which they are tempted to adopt in these earlier years, and it is as objectionable to see signs of permanent mischief in incidental tendencies as it is to overlook their psychologic significance. One may be trustful, but should none the less be watchful.

The principal dangers to which parents are exposed are of a twofold sort. First, they may fail to get any adequate idea of the process which is going on in the child's mind. Next, they may fail to recognize that each child, at each stage of his existence, is instinctively trying to construct a species of unified world, and is using therefor a set of symbolisms which must, perforce, be based on the sensations which he gets from his own efforts and functions, however foreign and trivial, or even revolting, the language of these symbolisms may seem to the adult.

Finally, they may let the desire to seek their own gratification (even though unconsciously) stand in the way of the best interests of the child.

This latter danger is important and familiar and although not difficult to understand is very difficult to avoid. The love of the parent for the child usually means great devotion; but this is too often given for the sake of a return in kind, and it then partakes of the character of self-love, or mirror love. This sort of devotion fetters the child instead of making him more free, whereas really disinterested love increases the child's independence by arousing in him a corresponding disinterestedness on his part, in a form suitable to his age.

---

[15] I am not attempting here a complete explanation of theft-habits, certain roots of which have been shown by psychanalysis to be very deeply rooted in infantile instincts.

The parent should be a bridge over which the child may pass to a social existence of a wider sort, carrying habits and tendencies of loyalty and service, and feeling within himself a foreshadowing sense of the larger community of which he is to become a part. But, instead, it too often happens that the father or the mother, by dint of the very exclusiveness and intensity of their own affection and the fascination of its exhibition, creates or intensifies a similar exclusiveness in the child's mind, and thus chains him to a set of private gratifications which become sensuous and exacting in proportion as they are asocial. The "father-complex" and "mother-complex" have played with good reason a large part in psychanalytic writing, as in life.[16] Repeatedly have I seen lives that should have been eminently happy, threatened with unhappiness through influences like those which I have outlined.

Another important principle which every one should know is that the fantasies and desires of children, even when their object is something which to the adult seems insignificant or unworthy, have meanings which *come near* to being good and useful meanings, and may by chance be transformed by good management into something useful and creative.

If the old saying is true, that the highwayman makes often a good turnkey, then there must have been a time when a dose of prevention would have been in place for him. And the same is the case with children. The slightly neurotic or imaginative child who is bound, at each phase of his life, to try his hand at building an imaginary world of interest, of beauty, and, above all, of power, will do this or symbolize his attempts to do so, by every means that lie at hand.

The intelligent parent will seek to see through the act or the symbol, and to appreciate the child's meanings. These meanings should be divined through real sympathy, based on close but intelligent intimacy, and should be taken at their best value.[17] For it may depend on the turn of this straw whether a desirable outcome finally emerges or whether the act or interest that might have served a good turn as a symbol and then have been replaced, becomes, through repression, the center of a hampering craving. The tendency to relive, in later years, the fantasy-life of self-indulgent childhood may arise from either of two sorts of causes; an excessive preference for the self-indulgent pleasures first exhibited at an early period when another and better choice might perhaps have been made with almost equal willingness; and a tendency to regression toward these renounced but simpler pleasures, showing itself under conditions of fatigue and strain from which every person seeks instinctively to escape. The child should be protected so far as practicable from both of these dangers, first through having ample inducements offered him for making the best choice, and, next, through being taught to do well and easily the tasks that he is to be called on to do.

In other words, his incitements to the best choice (as, especially, through the imitation of living and historic characters, and through examples afforded by literature), his adaptations and his adaptability should all be held in mind, and with special reference to the specific sorts of dangers that he must encounter.

The imagination of the young child is a weapon of immense power for evil or for good. It can be turned to the support of the reason or to the intensification of sense cravings. But on this great subject I cannot enter here.

The supplementary addition which I propose to this educational scheme is one that in a certain sense restores the ambivalent principle, as one that when rightly understood is broader than even the principle of independence and power, as commonly conceived. The best man—or child—is not alone a single individual; he is likewise a member of a community, or series of communities, eventually of an ideal community of some sort to which he feels that his loyalty is due and to which he becomes rebound. Similarly, just in proportion to the degree that a man makes himself independent of narrowing ties such as imply slavish dependence, whether based on fear or favor, or longing for approbation and attention, or jealousy or envy, and becomes in that sense independent, he becomes once more dependent on the obligations imposed by his own good qualities and powers, according to the principle hinted at by the term *"noblesse oblige."*

If such a person frees himself from the objectionable and hampering features of his childhood, he should retain, nevertheless, and all the more, the best that his childhood stands for, thus expressing, in his life, all that "religion" literally taken, indicates, namely, a rebinding accompanied by a setting-free. Nothing less than this sort of ambivalence should be, I think, the goal of education for the normal and the neurotically disposed child. This sort of rebinding which should show itself able to meet, at least fairly well, any ordinary test of genuineness is also a goal aimed at theoretically by the educational system of Froebel. It is, of course, not to be supposed that a couple of years even in the best kindergartens, much less in any given school which bears that name, is to be reckoned as a sure prevention against subsequent psychoses, any more than it is to be supposed that every person of the type to which I have above alluded as the best in kind, is to be considered as, *ipso facto,* beyond the reach of these dangers. The causative factors ordinarily involved are far too numerous for that, but one reason that I rate so high the possibilities of this system is that while it aims to use all obvious means for the development of character without needlessly calling the conscious attention of the child to this aim, it recognizes also the importance of taking some measures to prepare the child, through very simple investigations into the results of his own acts,[18] for making later, even if still only in a simple form, that kind of rational self-scrutiny which psychanalysts have learned to look on as of so much value.

One of the most obvious fruits of this rational self-scrutiny is that — contrary to the usual belief — it is destructive of that morbid, emotional self-scrutiny that goes by the name of introspection and that shows itself so often as a sign and a promoter of the neurotic disposition. I am not wedded to any one plan of education, however, and should welcome any scheme that could show evidences of its capacity to develop character, self-reliance and the recognition of community obligations.

---

[16] Compare papers by Abraham and by Jung in the Jahrb. f. Psychoanal. u. Psychopathol. Forsch., i, 110, 155.

[17] Compare R. L. Stevenson's Lantern Bearers.

[18] Compare The Kindergarten: A Report by Susan E. Blow and others, 1913.

Let it not be supposed, however, that this claim can, without further inquiry, be made for any and every system that makes a great point, with quasi-military vigor, on the overcoming of difficulties just for their own sake. This has its value, but it is a value that can easily be estimated too highly. After all, it is the personality and previous training of the teacher that are the elements of chief importance. But every such teacher should have been taught to accept a hint from the experience of the psychanalyst, and to use, not only general but specific means to make his personality eventually unnecessary to his pupils. The importance of following this rule was pointed out by the able Mme. de Stäel, as a consideration worthy the attention of every legislator.

GENETIC FACTORS IN ONE HUNDRED CASES OF PSYCHONEUROSIS*

DONALD GREGG, M.D.
BROOKLINE, MASS.

The object of this paper is not to present any new genetic or etiologic factors for the psychoneuroses, or to claim any one genetic factor as the origin of these nervous conditions. It is merely to present an analysis of 100 cases which have been studied to see what genetic factors have been found to occur. Theories can be met and controverted, or strengthened and established, only with the help of statistical studies. What are needed to-day are statistics of cases by hundreds and thousands. This is my excuse for presenting the following study:

The cases were gathered from the records of the out-patient department of the Boston Psychopathic Hospital. Here the clinic has been a steadily increasing one since its opening nearly two years ago, until it now numbers over 100 new cases and over 400 old cases a month. The cases are of three classes: patients discharged from the hospital that are subsequently followed up in the out-patient department; patients brought to clinic by various organizations; by court order; by charity agencies, etc., and cases of patients coming of their own initiative, alone or with friends. Over 1,500 new cases have been seen, and of these over 100, or about 7 per cent. of them, have been diagnosed as psychoneuroses and include cases of hysteria, psychasthenia, neurasthenia, etc.

METHOD

First, the statistics dealing with 100 cases as a whole will be presented, next, an analysis of various groups will be considered, and, lastly, conclusions will be drawn.

In the 100 cases studied, 57 patients were males and 43 females. The patients varied in age from 14 to 58 years. The average age was 34+. By decades the patients were distributed as follows: in the first decade, none; in the second decade, 10; in the third decade, 28; in the fourth decade, 36; in the fifth decade, 17; and in the sixth decade, 9 cases. Thus, two-thirds of the patients were from 21 to 40 years of age. Thirty-five patients were of native stock and 60 were foreign-born, or of foreign parentage. In 5 cases the stock was undetermined.

Ten years ago, Dubois wrote: "Nervousness arises from two factors: the one, essential and variable, viz.: natural psychopathic tendencies (hereditary or acquired in fetal life); the other, contingent and polymorphic—viz.: provocative agents."

An analysis of the cases for possible genetic factors showed that in fifty-six cases congenital causes seemingly existed, for the psychoneurosis subsequently developed; that is, psychopathic tendencies of an hereditary nature, or acquired in fetal life. In 44 per cent. of the cases, no such congenital causes were found. This absence of evidence of psychopathic tendency in these forty-four cases is probably explained by one or more of the following reasons: first, the large number of these patients (70 per cent.) that were of foreign stock, which means, in a majority of instances, inability to give intelligent and inclusive family histories, or histories of early life; second, the natural tendency of individuals to hide evidence of any trace of familial inferiority or deterioration; third, the impossibility in a large clinic of taking a detailed and thorough history in all cases.

The fifty-six cases considered to have probable congenital psychopathic tendencies, were grouped as follows:

1. Luetic stock: those showing evidence of congenital syphilis.
2. Insane stock: those giving a history of insanity in their families.
3. Alcoholic stock: those having alcoholic forebears.
4. Neurotic stock: those having "nervous" forebears, some of whom possibly were insane.
5. Tuberculous stock.
6. Miscellaneous stock: those having a history of cancer, asthma, etc., among their ancestors. Statistics of these groups are shown in Table 1.

TABLE 1.—FIFTY-SIX CASES OF PSYCHONEUROSIS GROUPED ACCORDING TO CHARACTER OF ANCESTRY

	No. of Cases	Sex, F.	Sex, M.	Foreign Stock, Per Cent.	Age, Yrs.	Symptom Age	Duration of Symptoms
Luetic	3	0	3	33	19.7	12.7	7.
Insane	14	7	7	35	35.7	27.2	8.5
Alcoholic	4	1	3	50	30.5	30.	.5
Neurotic	24	18	6	50	38.4	28.9	9.45
Tuberculous ...	5	3	2	60	40.8	36.2	4.6
Miscellaneous ..	6	4	2	100	39.6	32.5	7.1
Av. or total....	56	33	23	51	34.1	28.4	6.1

In this table, the most interesting point shown is the variation in age at which symptoms occurred in the different groups. It seems logical to assume that the more potent the congenital factor, the earlier symptoms may be expected to appear, or inversely, that the earlier symptoms appear, the more potent the congenital factor involved. Assuming that the symptom age bears some relation to the potency of the genetic factors involved in the production of the psychoneuroses, among the congenital factors luetic, insane, neurotic, and alcoholic defects of forebears are potent in the order named.

---

* Read before the Section on Nervous and Mental Diseases at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

In addition to the congenital or essential factors already considered, the relative importance of provocative factors such as environmental or somatic difficulties was studied. The distribution of these cases and their symptom age is shown in Table 2.

TABLE 2.—PROVOCATIVE FACTORS IN FIFTY-SIX CASES OF PSYCHONEUROSIS

Provocative Factors Stock	Environmental No. Cases	Environmental Symptom Age	Somatic No. Cases	Somatic Symptom Age
Luetic	2	14.5	1	7.
Insane	5	38.	9	25.6
Alcoholic	3	29.	1	33.
Neurotic	15	32.6	9	23.3
Tuberculous	4	40.2	1	20.
Miscellaneous	4	33.3	2	31.
Av. or totals..	33	33.	23	24.4

From these data, it seems that, given a psychopathic inheritance, an individual is likely to show symptoms of a psychoneurosis sooner when harassed by somatic than by environmental difficulties.

The cases were found to present various symptoms which were grouped under several heads: somatic, social, psychic, sexual, and religious. The frequency with which symptoms occurred in these various groups is shown by the following figures in 100 cases: somatic symptoms in 92 cases; social, in 50; psychic, in 19; sexual, in 32; religious, in 6; total, 199; average 1.9+. These figures show that the most common symptoms are of somatic nature.

TABLE 3.—ELABORATION OF SYMPTOMS

Group	No. of Cases	Duration of Symptoms
A	32	4.
A + B................	39	6.7
A + B + C.........	29	7.

In Table 3 is shown the elaboration of symptoms. Cases with one group of symptoms averaged 4 years in duration; cases with symptoms of two groups averaged 6.7 years, and cases of three or more groups averaged 7 years. In other words, the longer the psychoneurosis existed, the more complex and numerous became the symptoms.

In diagnosis, symptoms may suffice; in treatment, knowledge of the provocative agents and their removal may be essential, but in prophylaxis, the essential factors must be recognized. Within the last few years, so much stress has been laid on the provocative agents which have been brought into the limelight by psychanalysis, that the essential factors have failed to receive proper attention. No matter how early a psychoneurosis may be diagnosed; no matter how brilliantly an individual provocative agent may be pursued, captured, and dissipated by psychanalysis, psychopathic tendencies, hereditary or acquired in fetal life, will remain.

In preventive medicine, early diagnosis and successful treatment are both important, but prophylaxis is especially essential, and no successful prophylaxis can disregard or underestimate the importance of the essential factors in the production of a disease.

CONCLUSIONS

The conclusions to be drawn from this analysis of 100 cases of psychoneurosis are as follows:

1. In the majority, if not in all cases of psychoneurosis, there exists an essential factor, namely, a natural psychopathic tendency, hereditary or acquired in fetal life.

2. If the age at which symptoms occur among psychoneurotic individuals may be considered an index of the potency of the essential factor at work, luetic, insane, neurotic, and alcoholic defects among forebears are of importance in the order named in the production of psychopathic tendencies.

3. Among psychoneurotic individuals, somatic difficulties tend to induce symptoms earlier than do difficulties of enviroment.

4. The longer a psychoneurosis exists, the more numerous will the symptoms probably be.

5. Prophylaxis against the psychoneuroses can be furthered by early diagnosis, and by the elimination of the provocative agents of somatic and enviromental difficulties with the aid of medical treatment, psychanalysis, and psychotherapy, but no prophylaxis can be effective that fails to consider the essential factors in the production of the psychoneuroses.

701 Boylston Street.

NOTES ON PUBLIC INSTITUTIONAL WORK IN MENTAL PROPHYLAXIS

WITH PARTICULAR REFERENCE TO THE VOLUNTARY AND "TEMPORARY CARE" ADMISSIONS AND THE "NOT-INSANE" DISCHARGES AT THE PSYCHOPATHIC HOSPITAL, BOSTON, 1912-1913 *

E. E. SOUTHARD, M.D.

Pathologist, Massachusetts Board of Insanity; Director, Psychopathic Hospital, Boston; Bullard Professor of Neuropathology, Harvard Medical School

BOSTON

The technic of mental hygiene — how slender a prospectus is yet available! National and state societies, agitation for a government bureau, leaflet campaigns, after-care committees, programs of prophylaxis, all are signs of a developing propaganda. How often, as Mr. Beers of the National Committee has remarked, how often does this propaganda threaten to turn into a mere *letter-head!*

To be sure, a larger view reveals the fact that the entire movement is far more than a propaganda. A careful study of the increasing employment of the now classical plan of *voluntary admissions* to public institutions for the insane would reveal the large proportions of a deeper movement than what we now term mental hygiene. The law underlying voluntary admissions of the insane to institutions went into effect in Massachusetts, for example, in 1881. The opportunities afforded by the law were embraced by but a small number of patients, however, until the stimulation secured by a revision of the old law in 1905 (Chapter 432, Acts of 1905) permitting such voluntary patients to be supported like other patients from the public funds.

It is worth while to glance at a table illustrating the results of what was essentially a maneuver in mental hygiene. Table 1 illustrates conditions before

---

* *Contributions from the State Board of Insanity*, Massachusetts, No. 22 (1914.2). (Bibliographic Note.—The previous State Board of Insanity contribution was by E. E. Southard, entitled, "Eugenics versus Cacogenics: An Ethical Question," *Jour. Heredity*, September, 1914.)

* *Read before the Section* on Nervous and Mental Diseases at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City N. J., June, 1914.

and after the 1905 amendment to the voluntary admission law and the establishment of the Psychopathic Hospital.

TABLE 1.—VOLUNTARY ADMISSIONS TO PUBLIC INSTITUTIONS* OF MASSACHUSETTS

Year	No. of Admissions
1895-1899	405
1900-1904	520
1905	84
1906	125
1907	156
1908	195
1909	185
1910	200
1911	237
1912	282
1913	636

* Including a large private institution, McLean Hospital.

Until 1905 the voluntary admissions had run along rather evenly at 100 a year more or less, showing a slight response to the increase in general population. The majority of these patients had been private patients. After 1905 the absolute and relative numbers of voluntary admissions slowly rose up to 1913, when there was a signal and rapid advance due largely to the establishment of the Psychopathic Hospital.

TABLE 2.—ADMISSIONS WITH GROSS AND PERCENTILE FREQUENCY, 1906-1913, TO MASSACHUSETTS INSTITUTIONS

Year	Total	Voluntary	Per Cent.
1906	2,673*	125	5
1907	3,022	156	5
1908	3,195	195	6
1909	3,096	185	6
1910	3,254	200	6
1911	3,207	237	7
1912	3,350	282	8
1913	4,051	636	16

* These figures include so-called regular commitments, and both insane and sane voluntary admissions. They do not include the so-called "temporary care" group of admissions to Massachusetts institutions.

The leap from 8 to 16 per cent. voluntary admissions among the total admissions within one year is surprising. In point of fact, 440 of the 636 voluntary admissions of 1913 were admissions to the Psychopathic Hospital.

Enough to demonstrate how easy it is by setting a social mechanism in a suitable way to change the fate of various psychopaths. It is not my purpose here to investigate the value and results of the policy mentioned, although I believe it to be obvious that good must accrue. I think it worth while to print the text of the voluntary admission law of Massachusetts, hoping that some readers who live outside the boundaries of the sixteen states having such laws will be minded to push for the enactment of similar laws in states whose civilization has not reached that point. This reads as follows:

VOLUNTARY PATIENTS. R. L. 87

Section 45. The superintendent or manager of any institution, public or private, to which an insane person may be committed, may receive and detain therein as a boarder and patient any person who is desirous of submitting himself to treatment, and who makes written application therefor and whose mental condition is such as to render him competent to make the application. Such person shall not be detained for more than three days after having given notice in writing of his intention or desire to leave the institution. The charges for the support of such person in a state institution shall be governed by the provisions of law applicable to the support of an insane person in such institution, provided the approval of the state board of insanity shall be obtained in writing.[1]

Nevertheless, although it is certainly but semicivilized for a state to remain without the mechanism for voluntary admission of insane persons to public institutions, I should hardly go so far as to advocate as yet for all communities laws like the *temporary care* laws of Massachusetts. Perhaps they require further testing before they can be regarded as perfect. I give the more important of these laws, that dealing with seven days' care without commitment, hoping that its humanity will appeal to those whose communities are prepared to favor the patient's cause *as patient* at an apparent slight risk to his rights as an individual:

CHAPTER 395, ACTS OF 1911

AN ACT RELATIVE TO THE RECEPTION AND TEMPORARY CARE IN CERTAIN INSTITUTIONS OF PERSONS SUFFERING FROM MENTAL DERANGEMENT

The superintendent or manager of any hospital for the insane, public or private, may, when requested by a physician, by a member of the board of health or a police officer of a city or town, by an agent of the institution's registration department of the city of Boston, or by a member of the district police, receive and care for in such hospital as a patient, for a period not exceeding seven days, any person who needs immediate care and treatment because of mental derangement other than delirium tremens or drunkenness. Such request for admission of a patient shall be put in writing and filed at the hospital at the time of his reception, or within twenty-four hours thereafter, together with a statement in a form prescribed or approved by the state board of insanity, giving such information as said board may deem appropriate. Such patient who is deemed by the superintendent or manager not suitable for such care shall, on the request of the superintendent or manager, be removed forthwith from the hospital by the person reqesting his reception, and, if he is not so removed, such person shall be liable for all reasonable expenses incurred under the provisions of this act on account of the patient which may be recovered by the hospital in an action of contract. The superintendent or manager shall cause every such patient either to be examined by two physicians, qualified as provided in section thirty-two of chapter five hundred and four of the acts of the year nineteen hundred and nine, who shall cause application to be made for his admission or commitment to such hospital or, provided he does not sign a request to remain under the provisions of section forty-five of said chapter five hundred and four, to be removed therefrom before the expiration of said period of seven days. Reasonable expenses incurred for the examination of the patient and his transportation to the hospital shall be allowed, certified and paid as provided by section forty-nine of said chapter five hundred and four, as amended by chapter four hundred and twenty of the acts of the year nineteen hundred and ten, for the allowance, certification and payment of the expenses of examination and commitment.

I do not here discuss the operation of this seven days' care law, but merely wish to call attention to the stimulation afforded by the establishment of the Psychopathic Hospital to the drawing from the community of many persons suspected of insanity under conditions relieving them of stigma and expense in case they are proved not to be insane.

By the courtesy of Dr. Menas S. Gregory of Bellevue Hospital, I also include the text of a law passed by New York State in 1912, dealing with an ambulance service for the insane. This law goes in some respects further than the Massachusetts law and is worth considering by all interested in improving the care of psychopathic patients.

---

[1] It is the provision for *public support* of voluntary cases, herein provided, that turns the *voluntary* admission case into an important means of mental hygiene.

AMBULANCE SERVICE FOR THE INSANE

One of the most important and far-reaching steps in divorcing the medieval legal interference in the care and handling of the mentally diseased has been the recent change in the insanity law expediting and facilitating the admission of the mentally sick to the psychopathic wards. Section two of chapter thirty-two of the Laws of 1909 was amended March 5, 1912, to provide as follows:

> It shall also be the duty of such trustees of Bellevue and Allied Hospitals . . . to see that proceedings are taken for the determination of the mental condition of any such person in the boroughs or county mentioned, who comes under their observation or is reported to them as apparently insane, and, when necessary, to see that proceedings are instituted for the commitment of such person to an institution for the care of the insane; provided that such report is made by any person with whom such alleged insane person may reside, or at whose house he may be, or by the father, mother, husband, wife, brother, sister, or child of any such person, or next of kin available, or by any duly licensed physician, or by any peace officer, or by a representative of an incorporated society doing charitable or philanthropic work. When the trustees of Bellevue and Allied Hospitals are thus informed of an apparently insane person, residing in the boroughs of Manhattan or the Bronx, it shall be the duty of these authorities . . . to send a nurse or a medical examiner in lunacy, attached to the psychopathic wards . . . or both, to the place where the alleged insane person resides or is to be found. If, in the judgment of the chief resident alienist of the . . . psychopathic wards, or of the medical examiner thus sent, the person is in immediate need of care and treatment or observation for the purpose of ascertaining his mental condition, he shall be removed to such psychopathic ward for a period not to exceed ten days, and the person or persons most nearly related to him, so far as the same can be readily ascertained by such trustees, . . . shall be notified of such removal.

TABLE 3.—ADMISSIONS UNDER THE SEVEN DAYS' TEMPORARY CARE LAW OF MASSACHUSETTS

Admissions in 1911 (after June 4)	92
Admissions in 1912 (Psychopathic Hospital opened June 24)	416
Admissions in 1913	897

Of these 897, 590 were sent to the Psychopathic Hospital, the others to other institutions of the state.

These two examples — the increase in voluntary admissions and the increase in temporary care admissions — are enough to show what an engine of prophylaxis a psychopathic hospital, backed by proper laws, may become. Accordingly the Psychopathic Hospital deserves reckoning as one of the major departments of the prophylactic division of mental hygiene.

Every person admitted under the voluntary law is entitled to consider himself in one sense a free man, quasi-sane, or at least not antisocial, unless on his application to leave, steps are taken to commit him. Again, every patient temporarily cared for is entitled to consider himself as not yet *proved* insane, although he may be aware that alienists are examining him. Even if he is eventually to remain in an institution, he may well become such inmate voluntarily and, even if committed against his will, he has at all events the satisfaction of knowing that he was given a good chance of avoiding commitment by a period of hospital observation.

The proof of the pudding is the real object of my present communication. I have chosen to investigate the large "not insane" group of the Psychopathic Hospital's discharges to ascertain, if possible, just what benefit to the patient and to society has accrued from passing these persons through the psychiatric filter. How much a factor in *successful* prophylaxis are these "not insane" discharges?

For the moment, I do not deal at all with so-called "recovered" or "improved" cases that have been judicially recognized as insane. Of these recoveries there were in a period of about twenty-one months 195, and of "improved" cases, 177, or a total of 372 among 2,500 discharged from a hospital largely diagnostic in its functions, and with an average duration of hospital treatment not over three to four weeks.

I wish rather to consider among these first 2,500 discharges a group of 570 other cases regarded as not insane, and in fact as never yet insane. This group forms between a fifth and a quarter of our discharges (23 per cent.), calculating on a basis of our first 2,500 discharges. Of these 570 "not insane" discharges, 405 can be briefly disposed of from the diagnostic point of view as in Table 4.

TABLE 4.—"NOT INSANE" DISCHARGES WITH ASSIGNED DIAGNOSES

Feeble-minded *et al*	179
Psychoneuroses *et al*	100
Alcoholism	44
Epilepsy	39
Somatic and non-mental diagnoses	27
Syphilis	17
Brain disease of various types	10
Chorea	6
Paralysis agitans	2
Acromegaly	1
Other diagnoses	6
	431
Diagnoses in more than one case	26
	405

The significance of most of these figures is obvious. I will dismiss the feeble-minded group (179 cases), remarking that at least fifty-one of these may properly be regarded as belonging in the group of so-called "defective delinquents," using this term to include many who have never been considered by courts and who might better be termed potential delinquents. There promises to be a mine of criminal-anthropologic data among these cases, the more so in that alienists have not ever intensively studied large groups of these cases by the best methods in hospital wards. Reports should eventually become available of a large group of cases studied not merely with the Binet-Simon tests, but also from the point of view of the new "point scale" of estimate now about to be published by Robert M. Yerkes, psychologist to the Psychopathic Hospital. Meantime the value to the community of these examinations at a center having the stamp of authority is certainly large. Since a majority of these cases fall in the higher grades (by the Binet-Simon and other standards) it is possible that the amount of community prophylaxis thus afforded will eventually reach a high level, since the most difficult community problems in the field of feeble-mindedness are recognized on all hands to lie with the higher grades of feeble-mindedness.

I cannot forbear mentioning here, without developing the point, that a considerable advantage is accruing to the local social-service public from the making clear to them that the terms "feeble-minded" and "insane" (or, better, "psychopathic") are not terms equivalent to "should be sent to an institution!" With the organization of social service in various centers there has developed a certain tendency to bureaucracy, and to the conception that medical groups are institutional groups. Of course this runs counter to the underlying principles of social service, which, I take it, starts from a foundation of differentiated individual service. The basis of differentiation among psychopaths needing social service is very likely to be medical and not economic. Accordingly I feel that such an institution as the Psychopathic Hospital is likely to be salutary in any social service situation where bureaucracy tends to lift its head.

I will, secondly, dismiss the group of alcoholics (forty-four cases), remarking that they represent (*a*) certain cases of acute nature (considered *not* to be examples of delirium tremens or of the so-called pathologic intoxication or of any other form of mental disease, but) having a variety of mental symptoms demanding temporary care, and (*b*) certain cases of a chronic nature with acute exacerbations threatening to become antisocial. The advantage to the community of this service is obvious. The patients in question would formerly have gone to jail doubtless in most cases. The number of such cases does not represent the volume of the social problem they present. I will dismiss the topic, referring the interested reader to the conference on medical and social aspects of mental disease due to alcohol,[1] held at the Psychopathic Hospital before the legislative commission on drunkenness, Nov. 24, 1913. Article VI, from that conference report, by Dr. A. Warren Stearns and Miss Mary C. Jarrett, deals with the after-cure and moral suasion work of the Psychopathic Hospital. Although alcoholism forms only about one-ninth of the Psychopathic Hospital's problem, yet much attention has been given to the topic, and thirteen communications have been made to medical journals about it, twelve of which appear or are referred to in the report of the conference above mentioned and the thirteenth (on the treatment of deliria) has been published by Donald Gregg.[2]

Epilepsy (39 cases), syphilis (17 cases), various types of brain disease (10 cases), chorea (6 cases) and 9 miscellaneous cases need not be especially considered here, despite the attractive vistas which several of these fields bring up to the alienist, who is apt to feel that the mental complications *of the early phases* of various nervous and allied disorders have not been given adequate attention by neurologists untrained (at least in any modern sense) in psychiatric method.

Perhaps a group of 27 cases, tabulated as having "somatic and non-mental diagnoses," deserves more particular attention than I can at present give. I find 8 among these belonging to the in all ways difficult group of the morphinists, 5 to the group of dysthyroidism, 4 senile cases thought not to be psychopathic, 2 cases with some mental symptoms in advanced tuberculosis, 2 cases with mental symptoms in typhoid fever, etc.

I have reserved a group of 100 cases of psychoneurosis for consideration as a problem of great importance in any campaign of mental prophylaxis. The group was made up as follows: hysteria, 45; neurasthenia, 20; psychoneurosis not further specified, 20; psychasthenia, 10, and psychopathic personality, 5. I suppose the question uppermost in the alienist's mind as to this group is how far these cases are open to individualistic, and how far to specific or more general, lines of treatment. I take it that for the present it is well to give the patient the benefit of the doubt and individualize treatment as far as possible, although I hardly feel that the point has been proved. As between the therapeutic method that goes under the name "psychanalysis," the method called "rest treatment," the "work treatment," and what might be called calisthenic treatment, it is a question whether science can yet say that one treatment is always better than others, or that one treatment is good for Patient A and another for Patient B, or that no one of the methods is of avail in certain cases.

I know of no accurate estimates of the volume of such disease in the community. Here it seems as if about one-quarter of the not insane (but in some way psychopathic) cases resorting rather freely to the Psychopathic Hospital belong to the psychoneurotic group. It is natural to suppose that the severer examples of the group are the particular cases which reach the hospital. If the total 2,500 cases may be regarded as somewhat fairly representating the serious forms of mental disorder (all types) in the community, then one in twenty-five of these belong to the theoretically so interesting and practically so important group of the psychoneuroses.

Before the community plunges into the program of building public sanatoriums for this class, more figures should be available. Perhaps if we should combine certain convalescents from insanity with these psychoneurotics, we could justify on numerical grounds the establishment of such sanatoriums, having after-care and preventive functions. It seems doubtful whether the public funds will soon become available for this purpose, however worthy; but it would seem that private appeal could be very legitimately made for such institutions. It is a curious thing that some of the richest privately endowed institutions for the insane in this country have not seen their way to the establishment of such sanatoriums and preventoriums for the poor. Instead, we often find these endowed institutions successfully pushing claims for large private benefactions, but operating their wards on a system of high-priced treatments. Free beds for cases of this group are often hard to discover, at all events hard to find *empty!*

All that a psychopathic hospital, situated in the midst of a medical center (for the sound reason that otherwise not scientific men enough can be gathered for proper diagnostic work), can do with a problem like that of the psychoneurotics is to:

1. Effect certain cures of the magical order (though how permanent these are is a question, and how good for the patient's utlimate fate);
2. Apply "rest," "work," calisthenic and similar treatments (which unhappily can often not be carried on long enough for economic reasons);
3. Enlist private interest in individual cases requiring longer attention (methods of social service in discovering special private sources of aid);
4. Persuade suitable patients to submit to voluntary admission to state insane hospitals, there to stay for a time under rural conditions, enlisting the interest of resident physicians and overlooking the fact of association with the frankly insane (the cottage type of institution planning greatly helps here, because of the possible differentiation of cottages for psychoneurotics);
5. Endeavor to discover underlying causes.

If such a sanatorium for psychoneurotics were to be founded, it would be well not to divide it equally between the sexes. The psychoneurotic hospital should have more beds for women. Table 5 gives the incidence of 100 psychoneuroses according to sex in which twenty-nine patients were male and seventy-one female.

Tables 6 and 7 show that half of the psychoneurosis patients came to the hospital between the fifteenth and thirtieth years, and a little over one-half of the female cases (37:71) were between those ages.

---

[1] Boston Med. and Surg. Jour., Dec. 25, 1913, p. 929.

[2] Gregg, Donald: Modern Hospital, 1914, ii, No. 5.

TABLE 5.—SEX DISTRIBUTION IN ONE HUNDRED PSYCHONEUROSES

	Male	Female	Total
Hysteria	6	39	45
Psychoneurosis	7	13	20
Neurasthenia	9	11	20
Psychasthenia	4	6	10
Psychopathic personality	3	2	5
	29	71	100

TABLE 6.—ATTACKS AT DIFFERENT AGES

Ages	Hysteria	Psychoneurosis	Neurasthenia	Psychasthenia	Psychopathic Personality
6-10	1	0	0	0	0
11-15	5(1♂)	0	0	1	0
16-20	11(2♂)	2	0	0	1
21-25	15(1♂)	2(1♂)	1♂	3(1♂)	0
26-30	6(1♂)	6(3♂)	1♂	1♂	1♂
31-35	4(1♂)	2(1♂)	5(1♂)	2(1♂)	1♂
36-40	2	2	4(2♂)	1	0
41-45	0	3(2♂)	2(1♂)	0	1
46-50	1	2	4(1♂)	0	0
51-55	0	0	1♂	2(1♂)	1♂
56-60	0	1	2(1♂)	0	0
	45	20	20	10	5

TABLE 7.—AGE AND SEX-DISTRIBUTION OF PSYCHONEUROSES, ETC.

Age	Males	Females	Total
6-10	0	1	1
11-15	1	5	6
16-20	2	12	14
21-25	4	17	21
26-30	7	8	15
31-35	5	9	14
36-40	2	7	9
41-45	3	3	6
46-50	1	6	7
51-55	3	1	4
56-60	1	2	3
	29	71	100
16-30	13	37	50
Under 16	1	6	7
Over 30	15	28	43

Certain points about the syphilis index and the sex distribution at different ages have been placed in Paragraphs 11 and 12 of the summary.

SUMMARY

1. In the prophylactic division of mental hygiene the matter of voluntary admissions to hospitals for the insane holds a primary place; their number is increased by the plan of supporting such at the public charge just as committed cases are supported, and is still further increased, and even doubled, by the provision of a modern psychopathic hospital (increase from 8 to 16 per cent. of the total of voluntary and committed cases, experience at Boston Psychopathic Hospital).

2. A second prophylactic measure is the provision of proper temporary care for persons suspected of mental disease, as according to a unique Massachusetts temporary care law (first operative in 1911; see text). This provision has been eagerly employed in Massachusetts, more than doubling the number each year since enactment. The Psychopathic Hospital is receiving about two-thirds of all those thus received in Massachusetts, 1913.

3. Many important prophylactic questions relate to those thought to be insane but not proved to be. In this psychiatric borderland also lie many questions between insanity and feeble-mindedness. A large "not insane" group, namely, 570 cases among the first 2,500 discharges from the Psychopathic Hospital, has been reviewed to discern the general features of this psychiatric borderland of diagnosis.

4. Consideration is omitted of 372 additional cases regarded as recovered or improved after attacks of mental disease, although in one sense these cases are open to prophylactic measures, since the occasional review of these cases by a follow-up system must tend to help society, and may help the individual.

5. Of the 570 not insane cases, 179 were cases of feeble-mindedness of various grades, largely of the higher grades and including a large number of the so-called defective delinquents (more than fifty). In this connection it often becomes necessary to fight a bureaucratic tendency among social workers who tend to proceed on the erroneous assumption that an insane or a feeble-minded person belongs by definition in some public or semipublic institution.

6. The numerically next largest group is that of psychoneurotics (100), who are largely female (71), especially the hysterics (39 female in 45). Consideration is given to the idea of a *public sanatorium* or preventorium for such persons with far larger provisions for females than for males. It is thought that these cases, *forming at least a twenty-fifth* (probably more) of all mental cases in the community and at least a fourth (perhaps somewhat more) of all not *insane mental cases, might perhaps warrant*, if combined with the convalescents, the establishment of a public sanatorium to be run on economical lines in the country.

7. It is largely the great expense (from $20 to $25 per week) of caring for these cases in a centrally placed psychopathic hospital or psychiatric clinic which determines the idea of a rural public sanatorium; for psychotherapy (in whatever form may be determined to be valuable), rest treatment, work treatment and calisthenics, to say nothing of dietary and other general measures, *can be as well, though more expensively*, carried out in the urban psychopathic hospital.

8. Of the 570 not insane discharges, 165 were not classified as showing any particular form of mental or other defect, although it must be emphasized that each of these came for psychodiagnostic reasons and was admitted under a special form of law. One even was a case regularly committed under judicial procedure but later determined to be not insane, and nine others came under judicial authority by virtue of certain other laws not commonly used.

9. Of these 165 not insane discharges, ninety had been admitted under the temporary care law, unique in Massachusetts, referred to in Paragraph 2 (except in fifteen instances in which a somewhat similar law, operating for the city of Boston alone, was employed). With respect to these persons it must be emphasized that their problems would not have been so easily solved under any other procedure. Examples of such problems are question of paraphrenia systematica, question of hysteria, question of defective delinquent, question of epilepsy, etc.

10. Of the 165 not insane discharges, sixty-five either resorted voluntarily to the hospital or were pursuaded to become voluntary patients. It is evident that, in an increasing number of instances, persons realize or can be made to realize the possible psychopathic nature of their difficulties and come almost eagerly even to a public institution.

11. About 13 per cent. (18 in 136) of these persons who were discharged as without active symptoms of mental or other disease yielded positive Wassermann reactions in their serums. The interpretation of this fact is doubtful. The percentage in the males was 10 (7 in 65), in females 16 (11 in 71).

12. Two-thirds of the patients aged 6 to 15 were boys (21 boys, 10 girls), but of those aged 16 to 25, there were more than four times as many women as

men (10 men, 45 women). From 26 to 40, the sexes are about evenly distributed (17 men, 19 women). Then males preponderate (28 men, 14 women). Thus, women may be thought to get into suspicious psychopathic circumstances which later resolve, much more often in the period of adolescence, males somewhat more often in late boyhood and in postadolescent years. Therein lodges a problem in prognosis which if settled would greatly aid the alienist, particularly, in making certain social decisions.

13. It is clear that the influences which are bringing the not insane to the Psychopathic Hospital in Boston are bringing them there at comparatively early ages, and often (especially the females) in adolescence. The community's interest in the question of feeble-mindedness and the social worker's often justifiable desire to institutionalize her wards are powerful factors in this resort for diagnosis to a state institution. The physicians in the community are almost to a man, I believe, pleased with the increasing facility with which, under the laws mentioned above, some of their most difficult problems are solved. Time was when almost the only recourse in determining absolutely whether a patient was insane was to adjudge him insane and release him afterward if a mistake had been made. To overcome this difficulty, various devices have been adopted in the more highly civilized of our states. The Massachusetts arrangements are of particular interest to those who may not have been able as yet to civilize their own states in these directions.

74 Fenwood Road.

ABSTRACT OF DISCUSSION

ON PAPERS BY DRS. PUTNAM, GREGG AND SOUTHARD

Dr. D. J. McCarthy, Philadelphia: I believe that the social service idea, which has been promulgated by Dr. Cabot, began as a medical idea and then switched over to special social service along modern lines. The difficulty lies in the idea of placing a non-medical person in a position of responsibility to determine what shall and shall not be done with certain individuals. Social service is a medical problem necessarily, and we must look to the future social service work for such careful investigation of families and houses as was done in the crusade against tuberculosis in Berlin. Medicosocial service by large corporations is becoming practical everywhere, as in large department stores where thousands of young women are employed. If all such could be prevailed on to adopt social service, and if we had such an institution as Dr. Southard suggests, which is not purely charity, where the individual could be treated for one dollar a day, where the young woman losing 15 or 16 pounds a month progressively and showing nervous symptoms, irritability, etc., could be taken before she breaks down and where there would be no stigma of insanity, but simply the recognition of a condition of overwork, such an institution would be of immense help in the prevention of psychoneuroses. If these patients are not seen early before the break, when the symptoms are developing and the individual is losing efficiency, the most important factor in the prevention of psychoneurosis will be lost. Frequently patients come to us after the break has occurred, impelled by social reasons, but even in a mild case of mental disease the patient is not well in six weeks, and danger lies in putting him back to work in three weeks. It is a matter of from six months to two years before the nervous system is sufficiently stabilized to put that person back where he can do good and efficient work.

Dr. M. A. Hallowell, Vineland, N. J.: I have been handicapped because certain fields that belong to physicians have been relegated by physicians, I am sure not wilfully, but by default, to others. Certain phases and factors, I feel, are extremely important. One is the field work. It is being done throughout the United States by non-trained workers. As neurologists do you not think that a psychopathic institution where medical men shall be specialized for this particular work and equipped to do the work properly, is much needed? At present the workers are absolutely untrained; they are people who are social workers with an absolute lack of knowledge of medical subjects; they do not know how to bring out the leading factors in the etiology of disease. It is most important that medical people should get together and make it possible to put trained medical workers in this field.

Another extremely important point is that, in the United States, juvenile courts, or the child-welfare bureaus in connection with juvenile courts, are making the tests as to the relative normality of the children. Is it physicians and psychiatrists who are committing these children to the institutions for the feeble-minded, or prescribing treatment when the children are placed on probation? It is not physicians, it is not people who are qualified to do this work. Physicians in general are accepting reports from these bureaus not presided over by physicians; they are taking these reports as definite and conclusive, whereas, patients are committed to my institution, as to others, who are absolutely normal, but whose accustomed environment has been taken away from them; they have hardly become adjusted to the new environment, and their reaction is not pathologic, but the pendulum is swinging too far. The lay people who make these tests, who are responsible for this work, and who are doing it to the best of their ability because physicians are not taking it up, are in many instances mistaking those children with antisocial instincts for feeble-minded. I hope that physicians in general, the American Medical Association, and the neurologists of the country, will try to see that the field workers who make these family histories and beautiful charts shall be people who are qualified; that when a type of the feeble-minded or epileptic or alcoholic, or whatever type may be charted, is presented, we may be perfectly sure that it is a true type. We are not perfectly sure, with the charts in existence at the present time, as to whether or not most of the records are true. I know the handicap that physicians and neurologists suffer because there are no trained physicians to do this work. It is a wonderful opportunity for young physicians, and for psychopathic institutions to train young physicians to take up this work.

Dr. Walter B. Swift, Boston: I am glad to see the weight of Dr. Putnam's paper placed on synthesis and sublimation. Up to the present the psychanalytic movement has been mostly description, analysis, interpretation, with very little said about what to do, how to synthesize, when to sublimate, and who should do all this. In the first part of his paper Dr. Putnam has now swung the emphasis over to this utilitarian side. And I trust that from this date the balance will stay thus tilted. A word, then, is apropos as to the source of synthetic methods. Dramatic art contains more synthetic methods, that is, in the norm, than any other field of study I know. I have a personal interest here. There is more good psychology remaining still scientifically uninvestigated in the field of dramatic art than anywhere else. Students of synthesis can learn much from that field. A good idea of the intricacies of syntheses there contained can be grasped by picturing in the imagination for a moment all the varieties of synthetic processes that are necessary for the personification of another's personality.

I differ with Dr. Putnam when he says that the symptoms of the psychosis and the psychoneuroses are the patient's efforts to recover. Granted that every organism has an innate tendency to right itself when diseased, these symptoms appear to be more than that—a sort of let-up of certain previously controlling inhibitory centers, more of an uncontrolled expression than a controlled expression aiming at recovery. It sometimes almost seems true that some of these disease forms may have an etiologic basis in the brain anatomy—in the inherited variation of size of cell nuclei—so that a small area getting easily tired or depleted, lets up its inhibitory control under stress of somatic disease or environmental pressure and away the combination flies. Why could there not be, then, between the psychanalytic interpretation and the neuro-

EFFICIENCY OF SODIUM CHLORID IN THE THERAPEUTICS OF BRIGHT'S DISEASE

A FURTHER CLINICAL STUDY*

H. LOWENBURG, A.M., M.D.
Assistant Professor of Infantile Dietetics, Medico-Chirurgical College; Pediatrist to the Mount Sinai Hospital; Pediatrist to the Jewish Hospital; Assistant Pediatrist to the Philadelphia General Hospital
PHILADELPHIA

In September, 1912, in the Section on Medicine of the Medical Society of the State of Pennsylvania, which met at Scranton, I reported my experience with the use of sodium chlorid in the prevention and in the treatment of nephritis and edema. My conclusions as to the efficiency of this agent, employed as a normal solution by hypodermoclysis and by the drop method by rectum, were based on purely empyrical and clinical data. The latter included three cases of nephritis, two of typhoid fever, three of scarlet fever and one of infantile dysentery. I at that time observed that "the results in each instance were so strikingly uniform and identical that one cannot escape the conviction that they appear to be more than coincidental and to depend on definite biochemical phenomena which were determined by the physiologic activity of the therapeutic agent employed."[1] Then as now my results appear to me clinically to confirm the experimental observations of Martin H. Fischer[2] with reference to the nontoxicity of sodium chlorid in cases of nephritis with especial reference to its effect on water retention (edema) and on the kidney substance itself (albuminuria, cloudy swelling and cast formation). All cases in which this agent was employed, save one very severe instance which will again be mentioned, were relieved. It may not be out of place to remark that my original observations were made before I became acquainted with Fischer's work so that my results appear to me to be more valuable as confirmatory data.

I wish again to speak simply as a clinician, being without animal, experimental or other memoranda, and desire only to add to the number of cases previously submitted. My hope is that, perhaps in discussion, more convincing light may be thrown on the not yet settled questions as to whether sodium chlorid induces water retention, as to its influence on the actual kidney condition in nephritis, on the symptoms of the disease in general and as to the real nature of nephritis and edema.

In this connection it may be interesting to review briefly some of the theories as to the production of edema. The most noteworthy clinical contribution has been made perhaps by Widal and Javal.[3] Their work is well known and has been accepted by many clinicians as essential to the correct therapeusis of nephritis. My own experience, however, has not been in accord with their teaching, that an edema may, in a nephritic, be made to come and go by the administration or by the withdrawal of sodium chlorid. On the contrary, as a later reference to my cases will demonstrate, not only is this agent non-toxic to the nephritic or to the infant suffering from the so-called idiopathic edema of gastro-intestinal origin, but it is helpful and even curative. It has also been noted, personally and certainly by others as well, that the administration by hypodermoclysis of warm normal salt solution to marantic infants with subnormal temperatures or to wasted infants who have been dehydrated and demineralized as the result of a severe summer diarrhea (intoxication) has been followed by prompt absorption and elimination of the fluid and that edema has not ensued. Jacobi[4] has for years advocated the administration of additional sodium chlorid in the milk formula. I have uniformly followed his teaching and in no instance have I seen edema develop in either the sick or the well-feeding patient that could consistently be ascribed to this cause.

The studies of Cowie, on the other hand, would lead one to conclude that sodium chlorid retention is responsible for edema in wasted infants.[5] He believes that the action of the hydrochloric acid in the stomach on large doses of sodium bicarbonate increases the amount of sodium chlorid in the system and thereby induces water retention. I too have seen edema develop in cases of pyloric obstruction in which frequent washing of the stomach with a strong solution of sodium bicarbonate had been practiced. This need not necessarily be explained on the ground of salt retention as it occurs in some infants wasted from this disease and from others who have received neither sodium bicarbonate nor sodium chlorid.

Opposed to the activity of sodium chlorid as the sole etiologic factor in edema, although frequently quoted as supporting this view, are the conclusions of Stoltzner, Wagner, and Cohnheim. Each of these observers regarded the presence of some other substance as necessary. Cohnheim[6] could produce edema in wasted infants by the injection of salt only in conjunction with some local irritant as Spanish fly or the direct rays of the sun. Wagner[7] regarded the presence of a toxin of intestinal origin as a necessity. Stoltzner[8] believed that the edema resulted from the irritation of the blood-vessel walls by a toxin which likewise irritated the kidneys and resulted, as well, in albuminuria. The conclusions of these observers, especially those of Cohnheim and of Stoltzner, appear to forecast, as it were, and at the same time to lend support to the contentions of Fischer, that the edema and the albuminuria depend on general tissue acidosis, not excepting the kidneys. The effect of the acid in the latter instance is to cause the solution of the gelatinous colloidal substance of which the kidney is composed. This results in albuminuria.[2] His simple experiments as to the effect of non-acidulated and of acidulated solutions on the solution of fibrin and of gelatin and as to the restraining effect of the mere presence of neutral salts, notably sodium chlorid, on the dissolving action of the acid, appear to provide ample substantiation for his view that nephritis and its concomitant features, albuminuria, edema, etc., depend on the effect of acid on gelatinous colloidal tissue, and that this effect may be destroyed by sodium chlorid and alkalies. Fischer produced nephritis in rabbits by the injection of acid. He prevented the occurrence of nephritis by the simultaneous injection of acid and sodium chlorid. He cured nephritis in rabbits by the injection of sodium chlorid and sodium carbonate after producing it with acid. There is also sufficient evidence to support the view that a salt-free diet may actually lead to albuminuria and nephritis. Quoting from the works of G. Bunge, J. Forster and N. Lunin, Fischer explains this phenomenon as due to the low salt content of the body which occurs as the direct result of food without salt and the ingestion of large amounts of water poor in salts. The water washes out the natural salts already present. This salt starvation leads to systemic and renal acidosis and this to nephritis as represented by albuminuria, cloudy swelling, casts, and edema.[9] Sodium chlorid is a conspicuous example of a neutral salt of a monovalent ion. Up to a certain point of concentration this will inhibit the action of the acid and together with an alkali will entirely overcome the effects of the acidosis. To the bivalent and to the trivalent ion is ascribed even greater power of inhibition.[10]

---

* Read before the Section on Diseases of Children at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

[1] Lowenburg, H.: Pennsylvania Med. Jour., December, 1912.

[2] Fischer, Martin H.: Nephritis, New York, 1912.

[3] Widal and Javal: Internat. Clin., 1903; Javal: Ibid., 1905.

[4] Jacobi, A.: Therapeutics of Infancy and Childhood.

[5] Cowie, D. M.: The Significance of the Pyloric Reflex in True and Pseudopyloric Stenosis in Infants, Am. Jour. Dis. Child., March, 1913, p. 225.

[6] Cohnheim and Lichthein: Arch. Path. Anat., 1887, lxix.

[7] Wagner: Deutsch. Arch. f. klin. Med., 1887.

[8] Stoltzner: Med. Klin., i; München med. Wchnschr., 1906, liii.

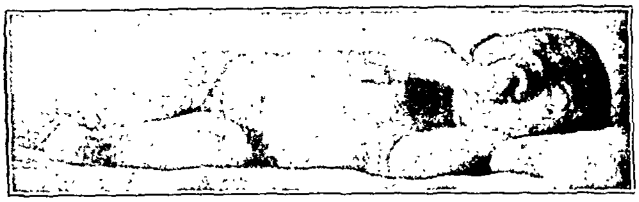


Fig. 1.—Idiopathic edema (Case 1). Pitting of leg and edema of face and skin of dependent portion of abdomen are shown.

With reference to the neutral salts, as represented by Ringer's solution (which contains chlorid of sodium, potassium and calcium) as being responsible for an increase in the flow of urine in experimental nephritis which Fischer produced in three ways (interference with respiration, intravenous injection of acids and clamping of the renal vessels), his statements are so startling that one is almost at first unable to realize their force in view of the universal acceptance of the teachings of Widal and Javal.[11] In whatever manner he produced nephritis he was able to overcome its effects by the use of this solution or by any neutral salt. Also by the use of sodium chlorid solution he enormously increased the urinary output and not only prevented edema but cured it as well.[12] This I have been able to confirm clinically with the use of sodium chlorid solution by hypodermoclysis.

The restraining effects of Ringer's solution and a sixth-normal solution of sodium chlorid on the occurrence of edema is seen in frogs in which nephritis has been produced by the injection of uranium nitrate.[13]

One can have no quarrel with those who differ with Fischer's views and attack his experimental data and conclusions.[14] One cannot, however, peruse his work without recognizing the fact that he has placed himself squarely on record as opposed to the application of the salt-free diet in the treatment of nephritis and to the idea that this and other neutral salts are toxic to the nephritic. He advocates their use as curative and preventive agents in conjunction with alkalies. My experience, as before stated, gained independently of a knowledge of his views, causes me to believe that his work has for some reason not attracted the attention which it merits.

My cases include one case of cardiorenal disease complicating exophthalmic goiter in an adult which I was permitted to observe through the courtesy of Dr. Helen Kirschbaum, three cases of non-renal and non-cardiac edema occurring in emaciated infants, the so-called idiopathic edema or edema of gastro-intestinal origin of infancy and four cases of actual nephritis.

In the cases of nephritis now reported and in those detailed in 1912 no attempt was made to classify them as tubular, vascular or azotemic according to the functional tests described by Schlayer. According to this author in the first variety salt and iodids are slowly eliminated while milk-sugar speedily passes out. In the second type the reverse occurs. In the last a 10-grain dose of urea is but slowly thrown off. In all instances the diagnosis simply of nephritis was made by the clinical symptoms and the urinary findings. Most of the cases followed some acute infection as tonsillitis, scarlet fever and adenitis. Clinically and pathologically also it is probably true that simple vascular (glomerular) and tubular nephritis rarely occur alone but that in every case a combination of pathologic changes exists. These observations are made because all patients practically received the same treatment and in all instances the effects, especially on the edema, were identical. All received large amounts of water orally and hypodermically and in no instance were symptoms intensified from this agent alone which, according to the teachings of von Noorden, provides additional irritation to the vascular system of the kidneys. All patients received as well enormous doses of sodium chlorid and in all instances save one (Case 8) the daily amount of urine was materially increased.

Case 1.—Boy, aged 6 months, weight 10 pounds, admitted to my service at the Mount Sinai Hospital, May, 1913. Bottle-fed. Previous history has no bearing on present condition. Infant is edematous over its entire body (*Fig. 1*). Temperature subnormal. No cardiac, renal or hepatic disease discoverable. Treatment: Subcutaneous injection of the following solution under the skin below the nipples on alternate days: sodium carbonate, crystallized, 10 gm., sodium chlorid 14 gm., water 1,000 c.c. About 250 to 300 c.c. daily. Edema entirely absent on the *eighth day* of treatment. Infant now showed all the features of marasmus. Weight 8 pounds 3 ounces. Unfortunately no photograph was taken. There appeared under the right nipple an extensive slough which would not heal and which finally exposed the whole pectoral muscle. The infant died from inanition and exhaustion.

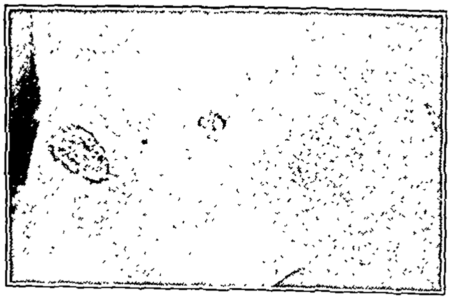


Fig. 2.—Sloughing areas from subcutaneous injection of alkali and salt solution (Case 5).

Case 2.—Boy, aged 9 months, seen in the service of Dr. W. C. Hollopeter and myself at the Philadelphia General Hospital. Bottle-fed. Emaciated and edematous about the legs, feet, thighs, lower abdomen and face with slight involvement of the hands. No discoverable lesion to account for edema. Temperature subnormal. Received normal saline solution by hypodermoclysis on alternate days under skin of abdomen. This was continued about ten days. Edema was entirely relieved and the infant made an uneventful though protracted recovery.

---

[9] Bunge, C.: Ztschr. f. Biol., 1874, x, xi. Forster, J.: Ibid., 1873, ix, 297, 369; Lunin, N.: Ztschr. f. physiol. Chem., 1881, v, 31.

[10] Fischer, Martin H.: Nephritis, p. 10.

[11] Fischer, Martin H.: Nephritis, p. 134 and following.

[12] Fischer, Martin H.: Nephritis, p. 148.

[13] Fischer, Martin H.: Nephritis, p. 188, etc.

[14] Moore, A. R.: Fischer's Theory of Edema and Nephritis, The Journal A. M. A., Aug. 10, 1912, p. 423; Edema and Nephritis, ibid., Feb. 1, 1913, p. 345.

[15] Fischer, Martin H.: Nephritis, p. 190.

Case 3.—Girl, aged 18 months, seen in consultation with Dr. J. S. Cohen. Her temperature was subnormal. Bottle-fed. Extremely weak and greatly emaciated. Voluntary movements slow and deliberate. Infant had received various food mixtures. None seemed to do good. Continuous gastro-intestinal disturbance. Bowel discharges were green and contained undigested curds. Child had been treated by several prominent pediatrists without effect. Condition becoming worse daily. Some vaginal discharge. Catheterized specimen of urine shows a trace of albumin and pus-cells. No casts. Urine high colored, scant and acid. Besides the marked emaciation the legs, thighs, lower abdomen and hands are edematous. Infant placed on Blockley buttermilk mixture with solid diet well salted and vegetable broth containing salt, olive-oil by mouth and cod-liver oil by inunction. Ordered to be taken out into the air and sun daily. It was given about 185 c.c. of warm sterile normal saline solution by hypodermoclysis every other day. The fluid was promptly absorbed. The urinary flow was greatly increased, the urine becoming practically colorless. The edema in the hands entirely disappeared as well as from the skin of the abdomen and thighs. The edema of the feet was not influenced to any great extent. A second examination of the urine revealed practically no abnormalities. It was impossible, however, to control the digestive disturbances. The number of bowel movements were increased and the child died suddenly from exhaustion about ten days from the beginning of treatment. This case, however, clearly demonstrated the non-toxic influence of sodium chlorid and large amounts of water in the presence of edema. The fatal ending of the case does not lessen the importance of this fact.

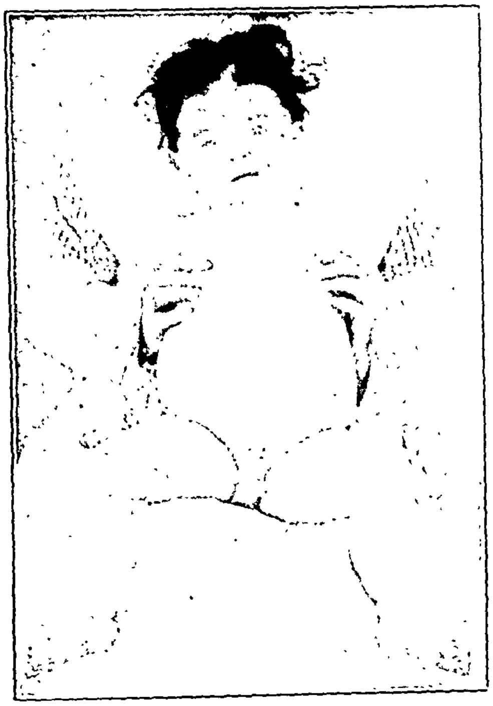


Fig. 3.—Acute nephritis. Marked edema of body (Case 8).

Case 4.—As in the previous case there was a fatal ending, but the symptom of edema as will be seen was materially lessened. The patient was Mrs. S. S., aged 52, a patient of Dr. Helen Kirschbaum who kindly permitted me to see her. This patient was desperately ill. She had exophthalmic goiter, with tachycardia, mitral regurgitation, cardiac dilation, arteriosclerosis and nephritis with edema of the legs, thighs and face. She had been ill for one and a half years. Patient was very excited and her condition was regarded as hopeless. Examination of the urine revealed the presence of albumin and casts. It was decided to inject 500 c.c. of the sodium carbonate and salt solution intravenously in order to note its effect on the edema. Following the injection the symptom was remarkably lessened. The urinary flow increased and the albuminuria lessened. She died, however, from cardiac exhaustion. The effect on the blood-pressure was not appreciable.

Case 5.—J. R., boy, aged 8 years, admitted to my service at the Mount Sinai Hospital, May, 1913. Diagnosis, acute attack in a child with subacute nephritis. Illness is supposed to have started two years previously. Child ailing more or less during this time. Three weeks previous to admission mother noted puffiness of the eyelids and that the feet and legs were edematous. Appetite poor. Intense headache. Urinary flow said to be diminished. Urinalysis showed albumin and casts, red and white cells and intensely acid smoky urine with a specific gravity of 1.026. Treatment: The alkaline and salt solution were administered by the drop method by rectum. In addition this solution sterilized was given hypodermically under the skin of the abdomen. At the point of injection two severe sloughs later appeared. These took weeks to heal by slow granulation. Sloughing resulted in all probability from the action of the alkali, and I believe it unsafe to employ the solution in this manner. It should either be given intravenously or by rectum. Figure 2 shows the sloughing areas. Result: The edema, the albumin, casts and blood elements disappeared and the urinary flow was increased. The child left the hospital within two months perfectly well and was sent to the seashore to recuperate. There has been no recurrence. Final recovery was delayed on account of the sloughing sores.

Case 7.—G. L., aged 22 months, admitted to my service at the Mount Sinai Hospital, August, 1913, diagnosis nephritis. Infant markedly edematous about the body and face for the past two months. Vomiting and diarrhea. Urinalysis shows all the evidence of nephritis. Treatment: Sodium carbonate and sodium chlorid solution by drop method by rectum and normal saline solution by hypodermoclysis. Result: Discharged from the hospital, September, 1913, completely recovered.

Case 8.—H. C., aged 17 months, seen in consultation with Dr. Robin of Wilmington, Del., and later admitted to my service at the Mount Sinai Hospital. Diagnosis, severe nephritis. Breast-fed up to present time. About eleven weeks ago developed a rash which was diagnosed measles (probably was scarlet fever); several days later mother noticed that child passed no urine. The entire body, face, hands, arms, legs, feet, thighs, scrotum, abdomen and chest wall intensely edematous (Fig. 3). Examination showed some fluid in the abdominal cavity and thorax. The lungs showed some edema as well. Urine obtained by catheter became practically solid when boiled. Contained casts and blood elements and was intensely acid. Child received 200 c.c. of normal salt solution under the skin and enteroclysis by the sodium carbonate and sodium chlorid solution. Treatment was continued daily, the amount injected being from 150 to 250 c.c. The edema began to decrease rapidly, but the urinary flow was not increased and the amount of albumin remained the same (Fig. 4). The abdomen and scrotum became more distended and the child became weaker and died three weeks after admission. This child was actually water-logged. The kidneys were damaged beyond repair as judged by the tremendous amount of albumin. While the edema, especially that involving the face, legs and scrotum almost entirely disappeared, the urinary flow was not increased. Fischer's explanation as to why certain nephritics increase in weight after receiving salt in the food in all likelihood applied here. The giving of salt causes the edematous tissues to give up their water. This cannot escape via the kidney if it be too severely dam-

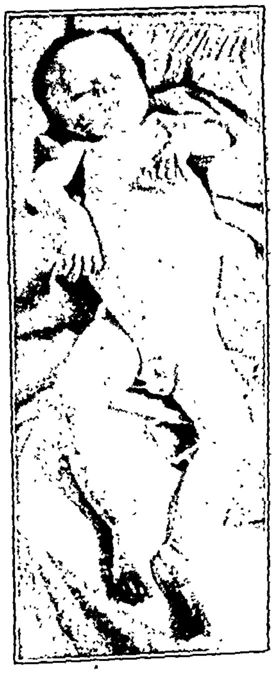


Fig. 4.—Edema of body much less (Case 8) after several injections of salt solution.

aged. Hence the fluid collects in the cavities, and being a solution of colloidal substance, it cannot be absorbed. Hence the increase in weight. This occurred in this case. This also explains why tapping must be done in this type of patient.

CASE 9.—E. S., girl, Pole, aged 8 years, seen in consultation with Dr. J. J. Frankel. Following a frank attack of scarlet fever the child developed an intense nephritis and when first seen was unconscious, in convulsions and edematous. The urinalysis presented all the features of acute Bright's disease. The sodium chlorid and sodium carbonate solution were given by the drop method by rectum continuously for about ten days together with salt solution by hypodermoclysis. The child remained unconscious for three days and was fed through the nose. She finally made an uneventful recovery, all the symptoms of nephritis disappearing and to-day she is perfectly well.

CONCLUSIONS

My experience with this method of treatment permits me to subscribe to the following:

1. Sodium chlorid neither produces nor increases water retention in either the nephritic or non-nephritic.
2. It is curative in cases of edema from any cause provided the kidneys are not too severely damaged.
3. It does not cause edema in marantic infants.
4. When combined with an alkali and plenty of water it exerts a benificent influence on all the symptoms of nephritis.
5. It is dangerous to administer a solution of an alkali under the skin as it is liable to produce sloughing.
6. The best means of administering the salt and alkali solution is either by rectum or intravenously.

1927 North Broad Street.

ABSTRACT OF DISCUSSION

DR. THOMAS S. SOUTHWORTH, New York: I cannot speak from the point of view of this disease in children, but since the use of sodium chlorid in children is contradictory to what has been impressed on us so strongly in late years concerning the elimination of salt from the diet of nephritic patients, I think it is wise to speak of the use of Fischer's solution in the case of a young adult with typhoid. She began with acute nephritis and delirium. There is no question of the fact that the nephritis rapidly cleared up coincidently with the instillation of Fischer's solution into the rectum, by the drop method. Whether it had any beneficial effect on the nephritis or not, it could not be said to have had any deleterious effect.

DR. JOHN ZAHORSKY, St. Louis: Will Dr. Lowenburg state what is the difference between giving from 10 to 15 gm. of potassium acetate or sodium chlorid by mouth every three hours, and then drinking a lot of distilled water or plain water, and using the solution hypodermically or by rectum? It is painful and often produces sloughing to introduce this material under the skin.

DR. PERCIVAL NICHOLSON, Ardmore, Pa.: When I was a resident in the Municipal Hospital we treated a large number of patients with salt solution by bowel, and we found it markedly increased elimination, and lowered the mortality in toxic cases of diphtheria. We devised a method to run the salt solution in slowly and continuously, only intermitting two hours during the day. At the end of the first day the children hardly noticed it, and retained the solution well even though a number were under 2 years. Solution introduced by the bowel seems to act better than when introduced by mouth, for the reason that the stomach is not upset with large quantities of solution. With the proper apparatus it is easy to administer by rectum, without disturbing the patient.

DR. HARRY LOWENBURG, Philadelphia: Dr. Zahorsky is right. Alkalies by mouth are just as good as salt administered by rectum. The paper emphasized the fact that salt did not increase the severity of nephritis, nor increase edema. I think salt administered directly would probably bring about as good results. Absorption may not be as quick.

THE RÔLE OF FUNCTIONAL KIDNEY TESTS AND PREOPERATIVE AND POSTOPERATIVE TREATMENT IN THE REDUCTION OF PROSTATECTOMY MORTALITY *

B. A. THOMAS, A.M., M.D.
Professor of Genito-Urinary Surgery in the Polyclinic Hospital and College for Graduates in Medicine
PHILADELPHIA

Conspicuous among the many notable urologic achievements characterizing the close of the nineteenth and the dawn of the twentieth centuries stands the establishment of prostatectomy—or more properly speaking prostatic adenomectomy—as a feasible, desirable and comparatively safe operative procedure. The surgical treatment of adenomatosis of the prostate, alias prostatic hypertrophy, has changed most remarkably since the days of Mercier's incisor and Leroy d'Étiolle's valvular section of the neck, to the modern conservative perineal operation of Proust-Young or the suprapubic transvesical prostatectomy of Fuller-Freyer.

Although it is generally conceded that the mortality due to danger of infection from catheter life in prostatism, in those cases in which that form of treatment is possible or justifiable, is to-day at least twice as great as from a skilfully performed prostatic adenomectomy, the fact exists that for more than a decade following the first so-called total prostatectomy in 1891 by Goodfellow, the death-rate incident to this operation was so high that the utility of the catheter continued to be an almost universal practice. During the past thirteen years mortality following prostatectomy has steadily decreased from 50 per cent. to from 5.5 to 3.77 per cent. in the experience of its worthiest and most expert exponents. In the light of these facts it is a source of much regret to genito-urinary surgeons that many practitioners on the one hand continue to advise and recommend, routinely, medical treatment and the time-worn catheter with its 100 per cent. mortality in a four-year prognosis, while on the other, many general surgeons doubt the veracity of statistics and point to a minimum mortality of from 10 to 20 per cent. for the operation of prostatectomy.

Satisfactory as the results have become with improvements in technic, there is to-day a definite and extensive effort on the part of urologists to shave the present low mortality by more careful discrimination in the selection of operative cases, by exact study of the general organic fitness of the candidate, especially his functional kidney sufficiency. Obviously the age of the patient cannot be entirely ignored, and weighed in conjunction with other features of the case, may preclude the advisability of operation, although *per se* advanced age is no contra-indication. Other factors of equal importance governing the operability of the case are best appreciated by recalling the stages of the living pathology of prostatism, namely (1) dysuric phenomena, (2) retention of urine with or without infection, (3) distention and dilatation of the bladder incident to urinary obstruction and (4) internal compression of the kidney with secondary cardiovascular changes and toxemia leading to uremia.

---

* Read before the Section on Genito-Urinary Diseases at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

Thus in addition to the offending prostate itself, with its secondary and remote organic and systemic effects, in the capacity of renal, cardiac, pulmonary, hepatic and even nervous and mental defects, infection is commonly present and must receive consideration in the prognosis and preliminary preparation of the patient. The increased mortality of prostatectomy in cases complicated by infection or calculi is well recognized.

As a result of the cardiorenal involvement, which is invariably present to a greater or lesser degree in cases of prostatic obstruction, I have come to attach much importance to the determination of blood-pressure and have made it a routine part of the preparatory study of all cases, placing its importance second only to the estimation of the renal function.

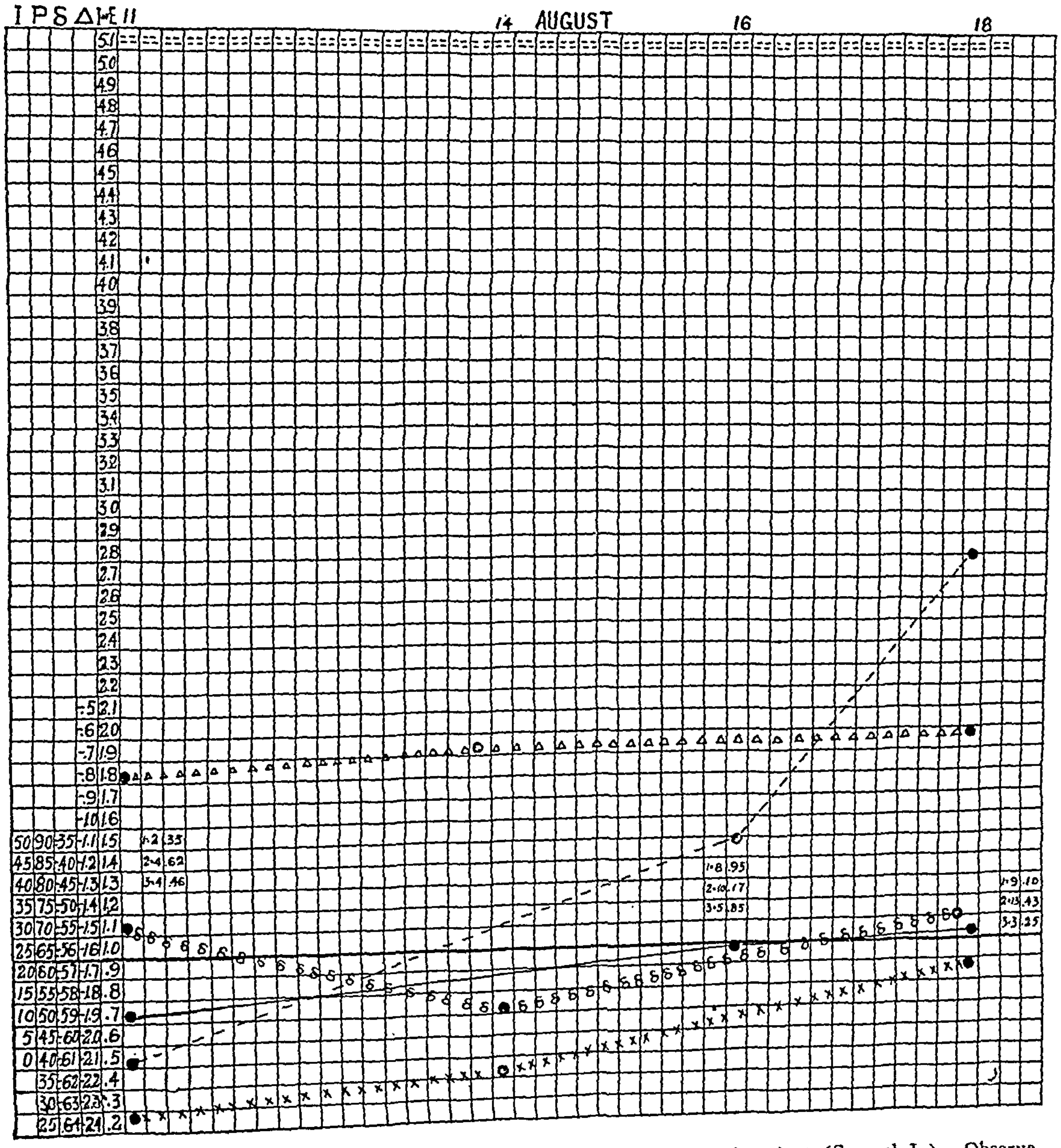


Fig. 1.—Illustration of progressive improvement in organic condition of patient (Samuel L.). Prostatic adenomectomy followed by uneventful recovery. Observe especially index of elimination of indigocarmin. — — — — = index of elimination of case (indigo); = = = = = average normal index for indigo; ——— = indigo percentage elimination; xxxx = phthalein percentage elimination; δδδδ = cryoscopy of blood; ΔΔΔΔ = cryoscopy of urine.

In importance at least equal to the blood-pressure governing the operability of the case stands the myocardium associated or not with a cardiovascular sclerosis. Minor valvular lesions of the heart in themselves need not be considered as vital contra-indications. Operation has been denied to two patients because of cardiac lesions associated with high blood-pressure and general sclerosis, in spite of the fact that in both cases the renal function was ideal as determined by indigocarmin, phenolsulphonephthalein and cryoscopy.

It must be quite apparent, therefore, that the factors concerned in the operation of modern prostatectomy and responsible for making its mortality one of the mildest in urologic surgery are manifold. They may be grouped advantageously under three captions: first, the preoperative investigation and preparation of patients; second, improvement in technic, and third, the best postoperative treatment. It is my humble conviction that the first and third steps in the management of the case are vastly more important than the operation itself and certainly outweigh any decision as to the choice of the perineal or suprapubic route.

Before entering on any discussion of the operative technic, I wish to revert for a few moments to the preliminary investigation of the case. Rectal palpation is of as much importance in urology as is a vaginal examination in gynecology; therefore, this exploration becomes the first act with the patient presenting a prostatic history. The second act consists in the determination of the amount of residual urine. This is important prognostically, in view of the *vis a tergo* pressure on the kidneys incident to the urinary retention and especially in determining the degree of actual vesical distention, for when the amount of residual urine attains, and *a fortiori* when it exceeds 300 c.c. the musculature has become atonic and the bladder has been strained and permanently dilated. This is evidenced by the deplorable result of prostatectomy, however skilfully performed, when vesical contractility is abolished.

The evil effect of completely evacuating the bladder in cases of marked retention of urine are well recognized by urologists. Not only may congestion and hemorrhage from the bladder and kidneys occur following such a procedure, but shock and even sudden death may supervene, owing to the reflex nervous derangement of long tolerated intrarenal pressure and secondary cardiac involvement. An understanding of this pathologic mechanism readily explains certain phenomena of urinary secretion, particularly the results in functional kidney tests when the elimination preceding sudden evacuation of the bladder in cases of retention markedly exceeds at times that after vesical relief. To perform prostatectomy or any other major surgical operation at that time, when the patient is in the negative phase, as it were, is equivalent to signing his death certificate and has deterred the wise surgeon from removing the prostate at the time cystotomy became necessary for urinary drainage. This realization, the provocation of preliminary treatment by catheterization, is by all odds the most important factor in the reduction of prostatectomy mortality. The value of this step has prompted a few genito-urinary surgeons to recommend the two-stage operation in all cases. I feel that such a practice routinely is utterly unnecessary, although the exceptional case will demand the procedure. As a rule intermittent catheterization or the catheter *à demeure,* closed, but opened from time to time, or allowed to drain continuously, will suffice for drainage for vesical and renal *restitutio ad integrum.*

During the period of preoperative treatment, particularly if urinary infection is present, total irrigations with silver nitrate are imperative, attention to the gastro-intestinal tract is obligatory, copious drafts of water associated with urinary antiseptics in an attempt to increase the urinary output are of great value, and finally, many patients will be braced up and tided over the critical operative stage by the internal administration of such drugs as strychnin, digitalis, nitroglycerin, caffein, sodio - benzoate, spartein and acet - theocin sodium (theophyllin sodio-acetate).

Undoubtedly, the study of the renal function is of preeminent importance, since impairment of the kidneys, resulting in azotemia and uremia, kill more patients after operation than any other organic defect and is the *raison d'être* of many known and unknown subsequent pathologic conditions.

It is my practice to subject all candidates for prostatectomy to a rigid and extensive investigation of their kidney function. Frequently these examinations have to be repeated owing to the poor operative risk at the time of admission, so that the average patient is obliged to remain in the hospital for his preoperative treatment for a term of two or three days to as many weeks or months in exceptional cases.

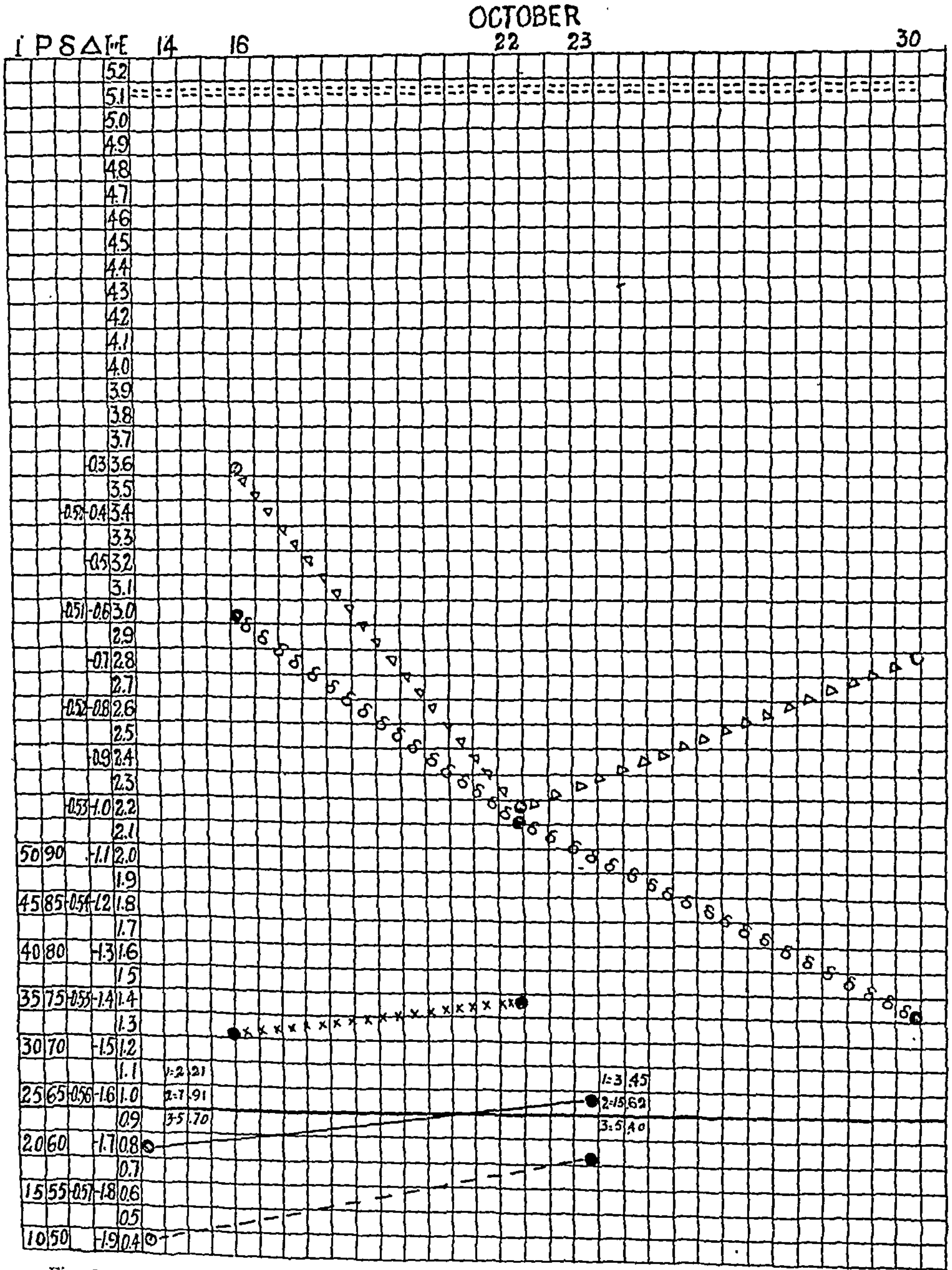


Fig. 2.—Case of inoperable prostatic adenomatosis (Michael T.). Inoperability due largely to marked cardiovascular lesions in addition to renal insufficiency. = = = = = average normal index for indigo; — — — — — = index of elimination of case (indigo); ———— = indigo percentage elimination; xxxx = phthalein percentage elimination; δδδδ = cryoscopy of blood; ΔΔΔΔ = cryoscopy of urine.

The functional kidney tests routinely employed are indigocarmin, phenolsulphonephthalein, cryoscopy of the blood and urine and the determination of urea. Of these an extended experience has taught that indigocarmin is the most practical and best and in no way superseded in value by any of the others. It matters little whether deductions are drawn from the onset of elimination or made from quantitative colorimetric determinations. The dye may be administered either intramuscularly or intravenously; if by the latter method, which may be the preferable procedure, there is no resultant soreness at the site of injection—an objection which was raised against the intramuscular method.

Valuable as I believe indigocarmin to be as a functional kidney test, judged from its onset of elimination and quantitative determination, I have been recently deeply interested in working out what I have styled its *index of elimination*. In the careful study of a series of cases, normal and pathologic, it is apparent to me both from the clinical point of view and operative results, that the *index of elimination* furnishes a truer guide as to the renal function than any other method that it has been my pleasure to utilize. The *index* is determined by dividing the quantity of indigocarmin eliminated during the first hour by the quantity excreted during the third hour after injection. Realizing that when the kidney parenchyma is diseased the onset of elimination is delayed and the amount of early elimination proportionately diminished, while the duration of excretion is prolonged, it has seemed to me for a number of years that the relative outputs for the first and third hours was of prime importance and probably of greater value than the mere quantitative output for the first two hours.

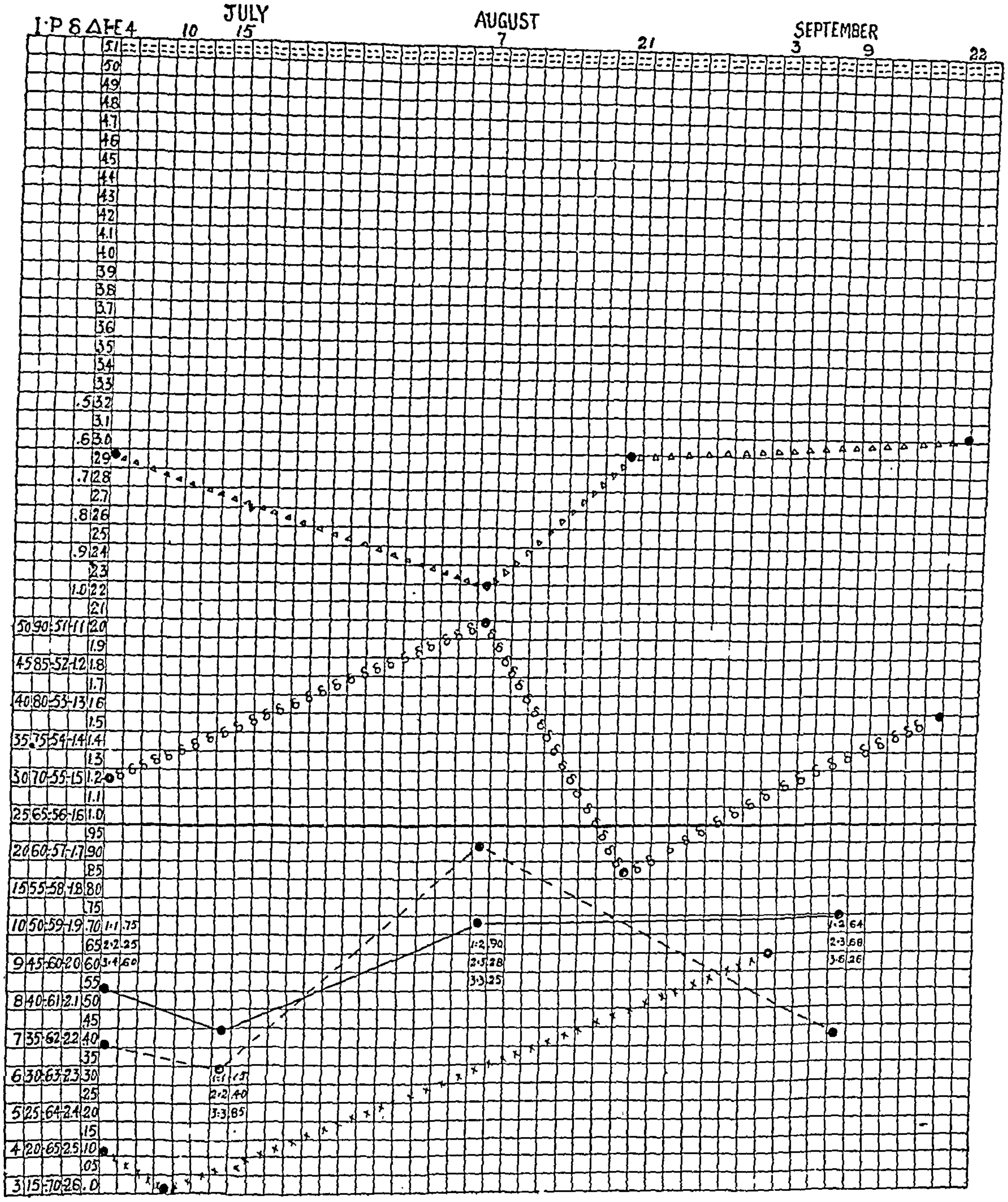


Fig. 3.—Case of inoperable carcinoma of prostate (Augustus C. V.). Observations extend over three months until death. = = = = = average normal index for indigo; — — — — = index of elimination of case (indigo); ——— = indigo percentage elimination; xxxx = phthalein percentage elimination; δδ δδ = cryoscopy of blood; ΔΔΔΔ = cryoscopy of urine.

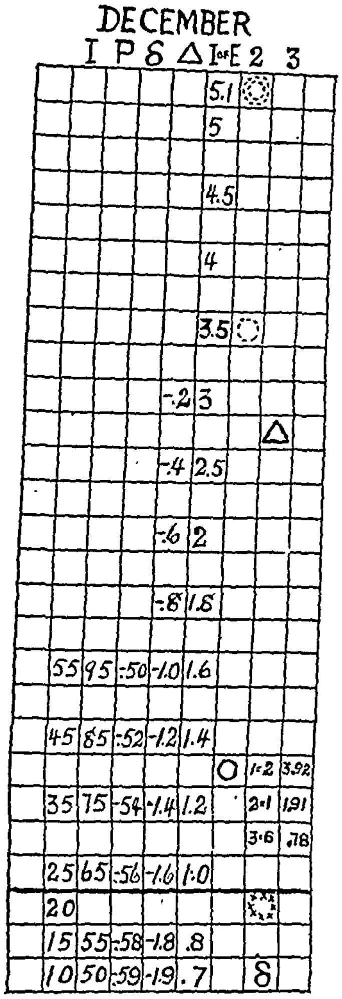


Fig. 4.—Index of elimination of indigocarmin high. Prostatic adenomectomy with recovery (Isaac F.). Circle of double broken lines = average normal index for indigo; circle of single broken lines = index of elimination in case (indigo); solid circle = indigo percentage elimination; circle of x's = phthalein percentage elimination; δ = cryoscopy of blood; Δ = cryoscopy of urine.

In order to substantiate my claims and belief, I have introduced into this article a number of self-explanatory charts of prostatic cases, inoperable, operable and operated, illustrating the position and value of the *index of elimination* relative to the quantitative determination of indigocarmin as well as various other functional kidney tests (Figs. 1, 2, 3, 4, 5, 6, 7 and 8). I have determined that the *index of elimination* for normal individuals in a series of cases averaged 5.1, and have designated same by double broken lines. A study of the charts graphically impresses the fact that when the amount eliminated during the third hour equals or exceeds that excreted during the first hour, the patient's kidney function possibly contra-indicates serious operative intervention, namely, prostatectomy, unless the total amount eliminated in three hours exceeds 20 per cent., when operation may be considered even though the *index of elimination* be very low (Fig. 6).

The importance of thoroughly emptying the bladder by catheter at the end of each hour cannot be too strongly emphasized, otherwise erroneous results will occur.

Relative to operative technic or the choice of operation itself, time, space and inclination forbid that I shall say much. It is my belief that the prostatectomist who patronizes exclusively the perineal route is just as much in error as the surgeon who dogmatically attacks the prostate only suprapubically. Worst of all is the operator who chooses this or that route simply because he can do it better, regardless of a lower mortality by another method, of which he may be less familiar; such surgery may be the best for the operator but not necessarily for the rank and file of patients. The fundamental consideration in the choice of routes for prostatectomy should be the selection of that associated with the minimum mortality. Presumably this, as demonstrated by its ablest exponent, Hugh Young, is perineal prostatectomy, and it behooves each prostatectomist to familiarize himself with every minute detail of technic of the conservative perineal operation before casting his lot unalterably with the suprapubic route. The operative approach in each case should be governed more by the pathologic condition present than by the normal anatomic relationship of the prostate. To attempt the removal perineally of a prostate with preponderant enlargement of the median lobe, particularly if it be complicated by a large vesical calculus or possibly a neoplasm, is just as erroneous a procedure as the attempted enucleation suprapubically of a small fibrous, adherent gland,

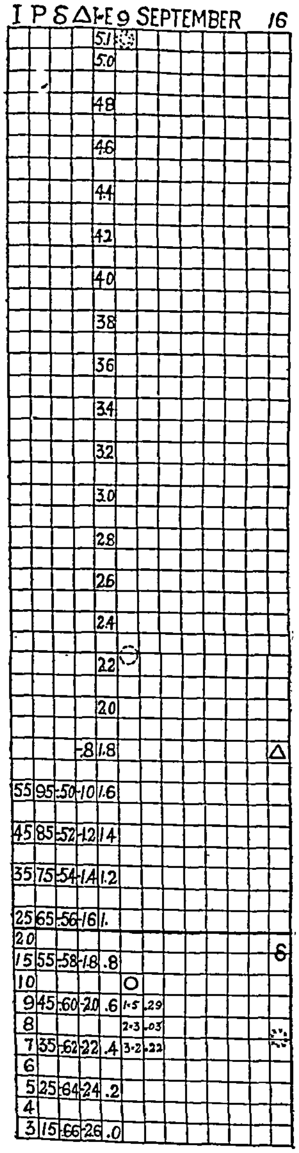


Fig. 5.—Index of elimination high, indicating operability of case. Prostatectomy followed by uneventful convalescence (Freeman S.). Circle of double broken lines = average normal index for indigo; circle of single broken lines = index of elimination in case (indigo); solid circle = indigo percentage elimination; circle of x's = phthalein percentage elimination; δ = cryoscopy of blood; Δ = cryoscopy of urine.

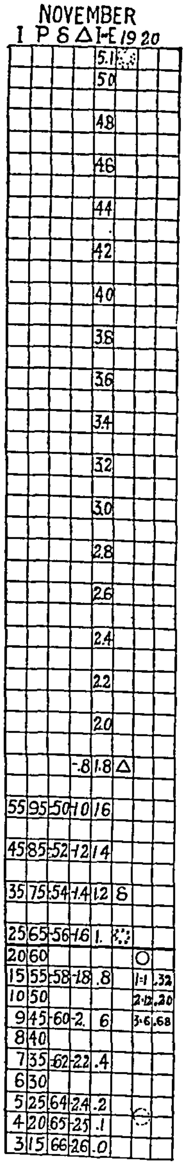


Fig. 6.—Index of elimination very low, but case pronounced operable since total output of indigocarmin for three hours exceeded 20 per cent. Prostatectomy and recovery (Albert M.). Circle of double broken lines = average normal index for indigo; circle of single broken lines = index of elimination in case (indigo); solid circle = indigo percentage elimination; circle of x's = phthalein percentage elimination; δ = cryoscopy of blood; Δ = cryoscopy of urine.

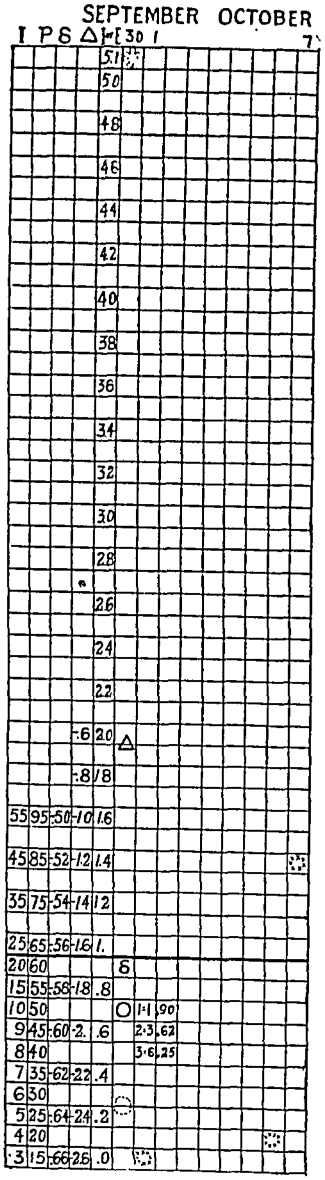


Fig. 7.—Index of elimination demonstrates insufficiency of kidneys and contra-indicates prostatectomy (Mr. A.). Circle of double broken lines = average normal index for indigo; circle of single broken lines = index of elimination in case (indigo); solid circle = indigo percentage elimination; circle of x's = phthalein percentage elimination; δ = cryoscopy of blood; Δ = cryoscopy of urine.

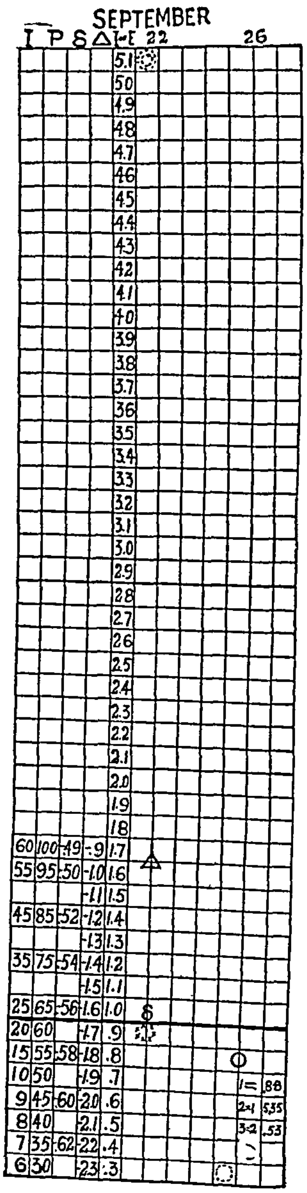


Fig. 8.—Illustrative of case of organic insufficiency in which index of elimination of indigocarmin contra-indicated prostatectomy (David S.). Death seventeen days after operation. Circle of double broken lines = average normal index for indigo; circle of single broken lines = index of elimination in case (indigo); solid circle = indigo percentage elimination; circle of x's = phthalein percentage elimination; δ = cryscopy of blood; Δ = cryoscopy of urine.

ofttimes readily excised perineally. To me it has seemed and is the routine practice to decide each case for itself, whether the prostate is to be attacked perineally, suprapubically or perurethrally. A most important aid in determining this choice has been the cystoscope. By it the nature of the lobular hypertrophy, vesical complications as calculus, tumor, etc., and most important of all, the functional integrity of the kidneys are determined (Figs. 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19 and 20). As a result of this discrimination in a series of over thirty cases only 16.6 per cent. of the patients were operated on suprapubically. Four patients, as a result of careful organic investigation, particularly the renal function, were refused operation. Moreover, the series embraces three cases of carcinoma — one pronounced inoperable (Fig. 3), and the other two discovered during the histopathologic examination of the removed gland—and one case of sarcoma. A review of all operated cases, both perineally and suprapubically, excepting one patient who died of ether pneumonia on the ninth day after prostatectomy, shows a mortality of 3.3 per cent. I feel morally certain that the death-rate in this series would have reached at least 10 per cent. had not the four patients noted above been refused operation owing to their organic and renal insufficiency.

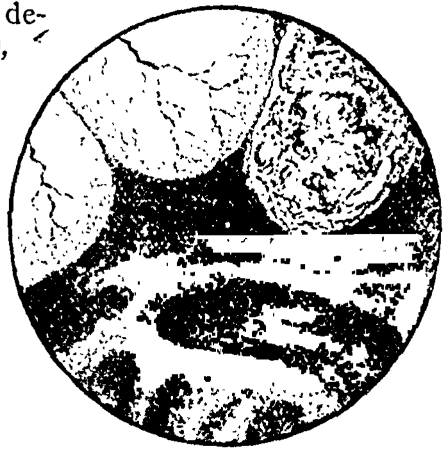


Fig. 9.—Ulcerative myxosarcoma of prostate.

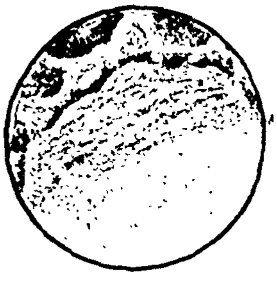


Fig. 10.—Hypertrophy of median lobe of prostate with beginning carcinomatous degeneration.

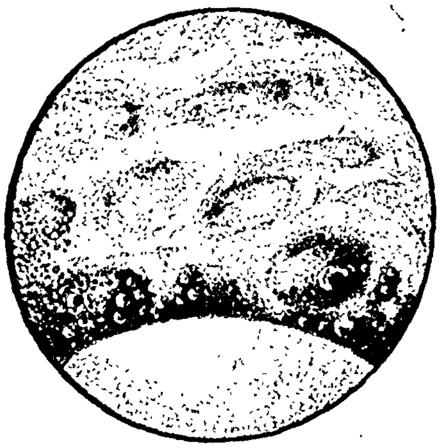


Fig. 11.—Prostatic enlargement complicated by vesical calculi.

It can be readily inferred from the statements above that, all things being equal, prostatectomy by the perineal route is the operation of preference. The technic employed follows as nearly as may be that advocated by Young, the essential difference being the incision as shown in Figure 21. In the employment of the suprapubic method, the technic of Freyer, with minor modifications, is utilized.

Although nitrous oxid is the preferable anesthetic in desperate cases, the gas-oxygen-ether sequence may be routinely and safely employed, particularly if due preliminary urinary drainage has been secured and properly maintained until the susceptibility of derangement of cardiovascular and nervous mechanisms incident to the *vis a tergo* intrarenal pressure has passed.

The postoperative treatment of these old men is little less important than the preliminary preparation. The cardinal factors responsible for speedy convalescence and a minimum mortality-rate are, first, hydrotherapy (routine hypodermoclysis and continuous vesical irrigation), and second, position (sitting posture in and the next day out of bed at the earliest opportunity).

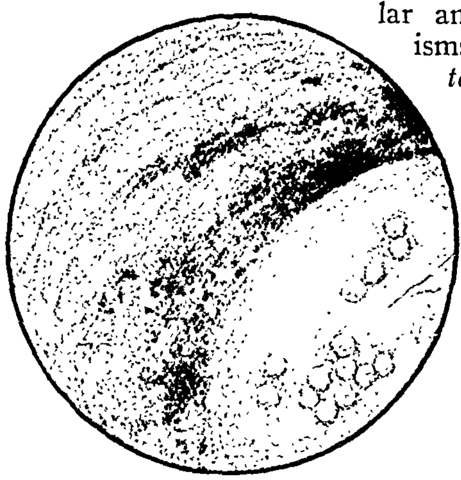


Fig. 12.—Hypertrophy of median lobe with cystitis cystica of overlying mucosa.

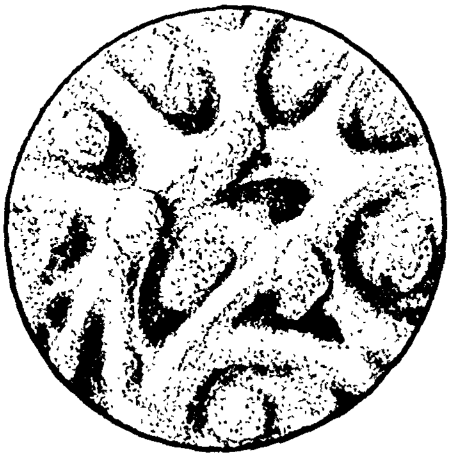


Fig. 13.—Trabecular hypertrophy of bladder and multiple papillomas complicating prostatic hypertrophy.

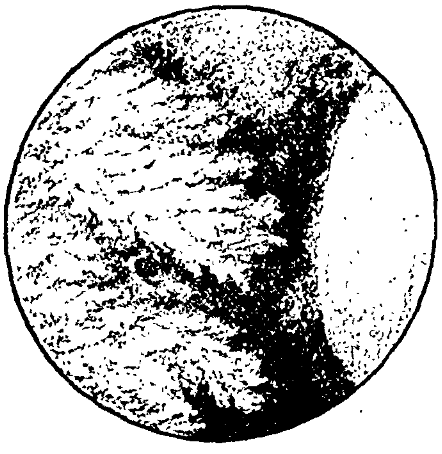


Fig. 14.—Papilloma of bladder complicating enlargement of the prostate.

CONCLUSIONS

1. The most appropriate method of prostatectomy in a given case depends on the pathologic condition present, rather than on the normal anatomic relationship of the prostate. This pathologic condition is of greater consideration than the statistical low mortality-rate of either the perineal or suprapubic method, and more discrimination in this respect offers a means of shaving even the present low percentage. The cystoscope is a most important aid in the determination of the avenue of approach in the particular case.

2. Although the renal function is the paramount consideration in determining the operability of a case, consideration of other organic conditions must never be slighted.

3. Indigocarmin is superseded by no other kidney test in the estimation of the renal function.

4. Apparently of more dependence than merely the onset and quantity of excretion of indigocarmin is the *index of elimination,* described by me.

5. A prostatectomy mortality of 3.3 per cent. is attributed largely to cystoscopic aid in determining the method of operation, and also to the *index of elimination* of indigocarmin in discrimination as to the operability of cases.

116 South Nineteenth Street.

ABSTRACT OF DISCUSSION

Dr. Hugh H. Young, Baltimore: I have never tried this method that Dr. Thomas has brought forward. It is certainly ingenious. Will Dr. Thomas say whether there is a similar index in phthalein? Do they stand in about the same proportion? I think we are all rapidly coming to the view that there is no one method; we do not think that phthalein is the only thing to use. Certainly a study of the blood, in a good many ways, is important, and we also must back up our laboratory findings with the clinical. A certain percentage of output in the first or second hour is not dependable. In a great many cases a man will never reach the stage at which his functional output would be considered good. In those cases the important thing is whether the output is stable so that the patients will be in a condition to stand operation. There are patients who go through an operation although their output is poor. Perhaps Dr. Thomas' suggestion as to the index may be of value, and I would like to see it worked out for all the other functional tests. I want to congratulate him on his low mortality. There is no doubt that the functional tests and preliminary treatment are important factors in lowering mortality. I feel that it is unnecessary in the large majority of cases to use a suprapubic drain. I employ that very seldom. I almost always use either a retained catheter or intermittent catheterization.

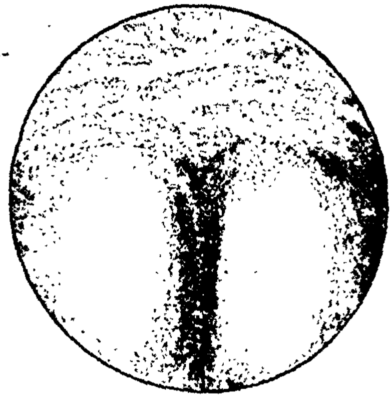


Fig. 15.—Preponderant hypertrophy of lateral lobes of prostate.

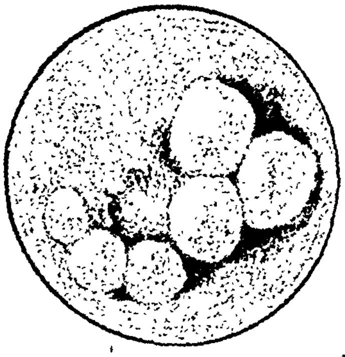


Fig. 16.—Vesical calculi and ulcerative cystitis complicating prostatic enlargement.

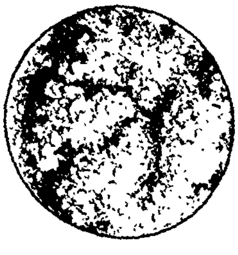


Fig. 17.—Carcinoma of bladder complicating prostatic hypertrophy.

Dr. Edward Martin, Philadelphia: I have seen Dr. Thomas' accurate work and I know its thoroughness. He is a lover of indigocarmin, is jealous of the claims of all other tests, and, as a result, applies his favorite test with more discriminating judgment than does any other man in this country. Certainly, in his hands, it is efficient and reliable. For the untrained the sulphonephthalein would seem more available.

Dr. Martin Krotoszyner, San Francisco: I am much interested in Dr. Thomas' statement as regards the choice between the suprapubic and the perineal route on the basis of cystoscopic findings, and I hope that Dr. Thomas will dilate on this point in closing the discussion.

Dr. Hugh Cabot, Boston: The longer I use tests of various kinds the more clear it becomes to me that dependence on one test is unsound. I have not come to the same conclusion as Dr. Thomas with regard to indigocarmin. I regard it as markedly inferior to phthalein. The essential thing is stability of kidney function, rather than a high or low function, which influences our opinion. We have all seen patients with extremely low function, tested in various ways, but without evidence of nitrogen retention, who stood operation well because the function was still stable. We have also seen patients with high function which, under various strains of exercise, changes of diet and alterations in the quantity of water, would vary markedly. Those patients we regard as extremely poor risks, and unless their kidney function can be made stable they are going to cause us to let the other fellow operate. I believe that some method of studying the nitrogen retention of the blood is essential to the most narrow decision in these cases. There are cases in which in no other way can one determine impending uremia. We have been depending largely on the Folin method of determining the nitrogen content of the blood. The French are using a pretty complicated method, but they all aim in the same direction—the evidence of the ability of the kidney to get rid of nitrogenous products. None, I think, of the color tests or the test with phloridzin attains that extremely important point. I am inclined to classify phloridzin, indigocarmin and phthalein in the same general category, regarding phthalein as the most efficient and the most easily managed, but all of them necessarily controlled by a study of nitrogen retention in the more difficult cases.

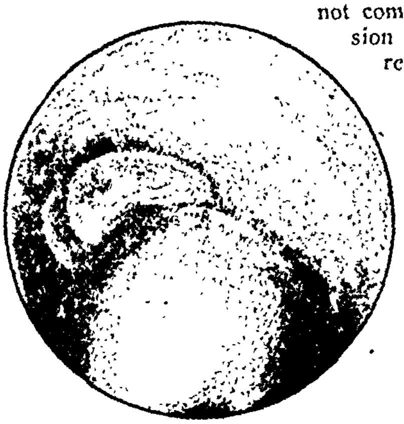


Fig. 18.—Vesical calculi and preponderant hypertrophy of median lobe of prostate.

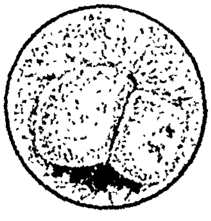


Fig. 19. — Vesical calculi complicating prostatic hypertrophy.

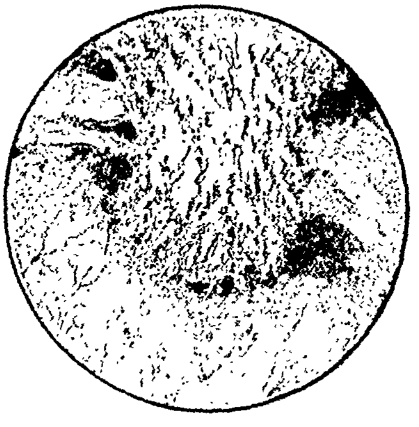


Fig. 20.—Papilloma of vesical neck complicating prostatic enlargement.

Dr. F. W. Braasch, Rochester, Minn.: I am not very familiar with the use of indigocarmin and therefore do not know its comparative value. I do not believe, however, that any functional test can give us data which will determine whether or not to operate. It has been my experience that subjective symptoms and clinical data following preliminary treatment are determining factors.

Dr. B. A. Thomas, Philadelphia: That it is not the large output that counts is exactly my contention. That is the very reason, as I said, that the total output for the first and second hours is not comparable in utility, from my experience in over three hundred cases, to the index of elimination or the ratio of the total output of the third and first hours. Concerning the index of elimination for phenolsulphonephthalein about which Dr. Young asked, there is no doubt but that the same method can be applied to any substance. It has, however, been my experience that the index thus determined has not been so reliable as when applied to indigocarmin. I have long thought that there may be the same objection to phthalein as to phloridzin, that is, the test may be too delicate; certainly the results in my experience are not so uniform and apparently not so reliable. Respecting the comparable value of indigo and phthalein, I would like to direct your attention to the chart of the patient with inoperable carcinoma of the prostate. You will see that phathalein indicated progressive improvement in the state of the patient's health. Indigocarmin total output showed that he was barely holding his own, while the index of elimination of indigo showed that the patient all the time was gradually sinking farther down into the negative phase. I could show you a number of other instances in which indigocarmin has apparently served as a much more reliable guide than phthalein. Brevity of time precluded the possibility of entering on the advantages of the cystoscope in determining the best operative procedure to be adopted in cases of prostatic hypertrophy. There are few patients who cannot be satisfactorily cystoscoped, and the revelations it gives are instructive and important. If you have a patient with a preponderance of the middle lobe, and particularly if associated with a large calculus or a vesical tumor, it is folly to attempt to remove that prostate perineally. On the other hand, if it is small and hard, with no relative preponderance of middle-lobe enlargement, it is perhaps wise, in view of the lesser mortality, to attack it perineally.

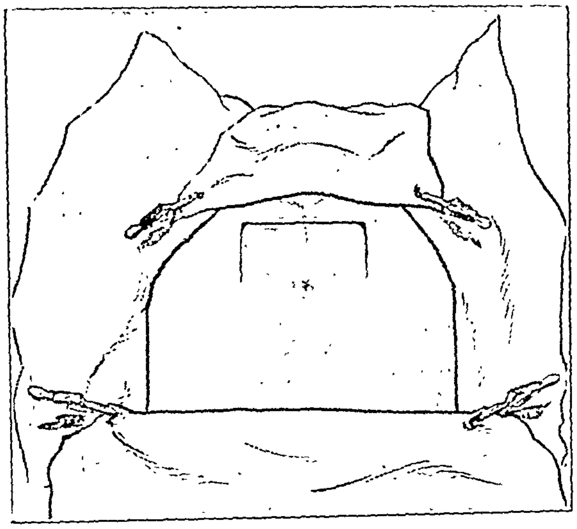


Fig. 21.—Author's incision.

Speaking of mortality, in explanation of the low mortality of 3.3 per cent. which I have had, I attribute this perhaps to good fortune, but also to certain other factors and precautions. For instance, in the last year I have refused to operate on four patients on account of the revelations by indigocarmin, and I am convinced that had I operated in those cases my mortality would have been 10 or 15 per cent. at least.

Finally, I believe that this index of elimination may give a better idea of the stability of the renal function than mere quantitative determination for the first two hours of indigocarmin or phenolsulphonephthalein, but in my experience it has been applied with the best results to indigocarmin.

THE RELIEF OF STERILITY BY MEANS OF PERMANENT EPIDIDYMOSTOMY

WITH THE FORMATION OF AN ARTIFICIAL SAC FOR THE STORAGE OF THE SPERM *

V. D. LESPINASSE, M.D.
CHICAGO

The types of sterility suitable for permanent epididymostomy are all cases of obstruction of the vas above the internal abdominal ring, and almost all cases of obstruction of the ejaculatory ducts. This work represents seventy-nine operations.

The relief of male sterility attracted little attention until 1901, 1902 and 1903, when Martin,[1] Scaduto[2] and Bogoljuboff[3] published their works on anastomosis of the vas to the epididymis, and the rete testis to the vas. These operations give excellent results in proper cases, but the statistical frequency of cases of sterility suitable for them is about one in three, or 33 per cent. They depend absolutely on the patency of the vas deferens. If the vas, or ejaculatory duct, is stenosed they fail.

To try to relieve the cases with a stenosed vas deferens, I conceived the following technic: A sac was made communicating with the epididymal tube lumen into which the sperm could be discharged and hence accumulate, so that the individual would always have from 2 to 10 c.c. of sperm available at all times. Two points came up: First, Where, or rather what portion of the epididymal tube is best suited to discharge into this sac? The head of the epididymis was selected as the most available portion as it is practically always open. It has the disadvantage, however, of having the smallest lumen of any portion of the epididymis. Second, How and of what shall the sac be composed? An ideal sac must possess the following characteristics: Material for its construction must always be available. It must be non-absorptive. It must not secrete any substance that is harmful to the sperm. As material for the sac, I have tried peritoneum, bladder mucosa, skin and rubber sheeting, and have under way experiments using vein silver foil and celloidin.

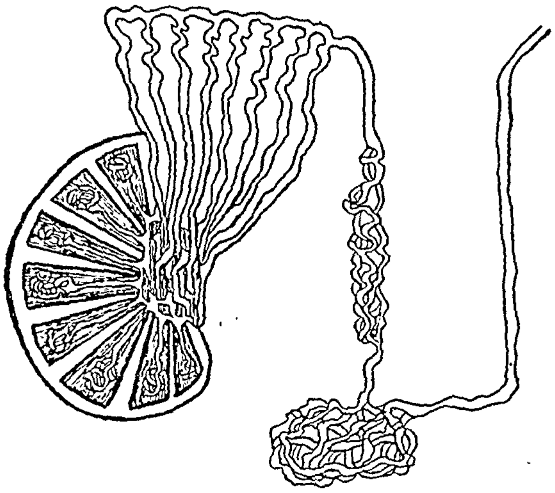


Fig. 1.—Schematic drawing showing the testicle, rete testis, globus major, body of the epididymis, globus minor and the vas deferens.

---

* Read before the Section on Genito-Urinary Diseases at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

[1] Martin: Univ. of Penn. Med. Bull., 1902, p. 388; ibid., 1903, xv, 2; Therap. Gaz., Dec. 15, 1909, p. 837.

[2] Scaduto: Ann. d. mal. d. org. génito-urin., 1901, xix, 257.

[3] Bogoljuboff: Arch. f. klin. Chir., 1903, lxx, 648.

When this work was first conceived, I considered that the technic would be very simple and could be carried out with great ease. The first difficulty encountered was the adherence of the parietal layer of the tunica vaginalis to the cut surface of the epididymis. I then considered all the methods of preventing peritoneal adhesions, but before these were carried out Post's[4] article on peritoneal adhesions came out, and he showed conclusively that all the so-called standard methods were practical failures. He advanced a new method, namely, the use of sodium citrate 2 per cent. in 3 per cent. salt solution.

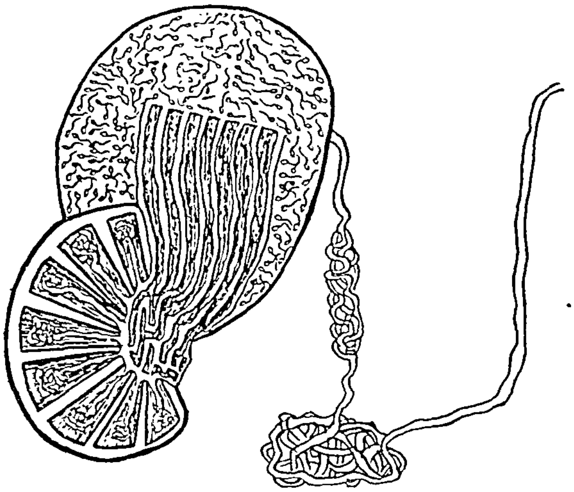


Fig. 2.—Schematic drawing, same as Figure 1, except that it shows the tubule of the globus major cut off and the sac made around them filled with spermatozoa.

This was tried and failed. In the peritoneal cavity there is considerable movement between the visceral and parietal peritoneal surfaces. In this work on the epididymis there is practically no movement, which fact may explain our failures.

I thought that these adhesions might be prevented by treating the tissues as we do the intima of blood-vessels, but these methods failed. The reason for this failure, in my opinion, is the slight hemorrhage that comes from the cut epididymal tubules and the absence of motion between the epididymis and the parietal layer of the sac. To check this hemorrhage, or at least minimize it as much as possible, I used epinephrin. Then it was thought that we might operate without producing any hemorrhage from the epididymis at all by the use of the following technic: A human hair threaded on a fine blood-vessel needle was passed into the lumen of the epididymal tubules; it was run along the lumen about a millimeter or so, then the wall of the tube was pierced by the needle and the hair brought outside the tubule; the two ends of the hair were then tied, so producing a slightly elastic band which would gradually cut through the tissues. On the side of the sac, to obviate adhesions to the cut surface of the epididymis, I desided to try some non-absorptive epithelial surface such as skin, bladder mucosa, or a piece of vein or artery. Only two of these tissues are available from a practical point of view, namely, skin and a section of vein. Skin was used with considerable success. Then, after becoming acquainted with the work of Delbet[5] on the use of rubber, it was thought that the sac might be made of rubber.

This was carried out in three ways:

First, making the sac of tunica vaginalis and then simply covering the cut surface of the epididymis and the continguous surfaces of the testicle and epididymis with a piece of thin rubber sheeting.

Second, by making the sac entirely of this sheet rubber and sewing it to the reflected capsule of the epididymis.

Third, by removing the tunica vaginalis completely and placing the entire testicle and epididymis in a rubber bag and sewing this bag to the spermatic cord.

TECHNIC

The tunica vaginalis is exposed as for an ordinary operation for hydrocele. The parietal layer of the tunica vaginalis is then cut, thus exposing the testicle and the epididymis. Epinephrin is now injected beneath the capsule of the epididymis, commencing at the top of the globus major and continuing down to the junction of the globus major with the body of the epididymis. An incision is made in the center of the epididymis commencing at the top of the globus major and continuing down to the junction of the globus major with the body of the epididymis. The epididymal capsule is now dissected off, thus exposing the epididymal tubules. The tops of these tubules are now cut off or hair threaded through them. The sac is made as follows: The rubber sheeting or tunica vaginalis is sewed to the reflected capsule of the epididymis in such a manner as to form a closed sac. The testicle is now replaced in the scrotum and suitable dressings applied.

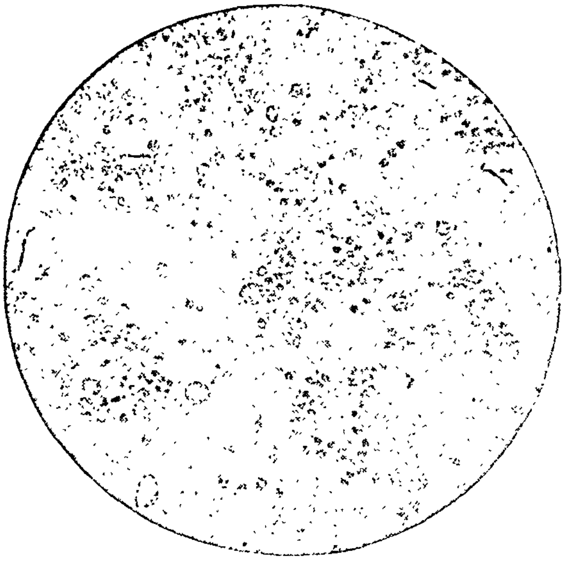


Fig. 3.—A photomicrograph of the fluid aspirated from the sac. This shows numerous spermatozoa.

CONCLUSIONS

With the above-described technic we can produce a sac into which the sperm will discharge and continue to live. This sac can be tapped whenever sperm are desired for impregnating purposes. This operation will relieve all cases of male sterility in which there is a functionating testicle.

I am under obligation for assistance to Drs. B. Newton Novy, Eugene J. O'Neil, John A. Ritze and S. Eisenstaedt, of the Laboratory for Experimental Surgery of Northwestern University Medical School.

---

[4] Post: Citrate Solution as a Preventive of Peritoneal Adhesions, Ann. Surg., January, 1914.

[5] Delbet, P.: Bull. de l'Acad. de méd., March 10, 1914, p. 380; Paris Letter, The Journal A. M. A., April 4, 1914, p. 1106.

7 West Madison Street.

ABSTRACT OF DISCUSSION

Dr. Henry L. Sanford, Cleveland, Ohio: Has Dr. Lespinasse had any practical results? Has he cured any of these patients?

Dr. W. M. Spitzer, Denver: Dr. Lespinasse's attempt is something that ought to have been undertaken long ago. If Dr. Lespinasse has had results the experiment is going to be well worth trying. He says that the spermatozoa are motile. Are they motile after being mixed with prostatic fluid, or just at the time when he drew them from the sac? Has he attempted impregnation with this fluid, and what was the result?

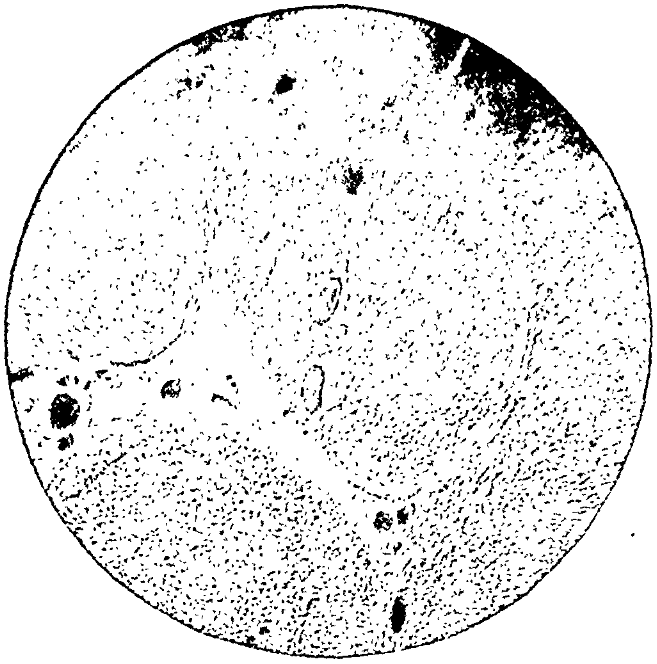


Fig. 4.—The hair in the epididymal tubule lumen. The two oval bodies are the cross-section of the hair.

Dr. Herman L. Kretschmer, Chicago: Will Dr. Lespinasse say what becomes of the rubber sac? Does it stay or slough out, or is it necessary to remove it?

Dr. Edward Martin, Philadelphia: These types of sterility come to us all, and we have not yet solved the question. I think everyone who has worked along this line has endeavored during operation to extract living spermatozoa, and usually the technic is their direct artificial injection into the uterus. There has as yet never been one single success. Lespinasse's suggestion seems a good one. In laboratory work we find that silver is tolerated better than rubber. A silver tube or capsule will remain and cause less irritation than rubber. It might be that a silver tube would be more likely to accomplish permanent drainage. This is suggested by the fact that in the operation of vaso-epididymostomy when we used silk on account of the frequency with which silver broke, our successful result fell at once, and when we went back to the silver we again got about 50 per cent. of successes. Within the last year I have reoperated in three cases, two of my own and one in another city. I used silver in these three cases. One is too recent to report on, but two of these patients reoperated on with silver have been successful, and in one case a pregnancy occurred afterward. The woman had a miscarriage, but the spermatozoa persisted in quantity.

Dr. V. D. Lespinasse, Chicago: There has been absolutely no practical application made of this procedure. I have been held up on it. When I first thought of this work, I thought it would be technically very easy to make this sac and to carry out the procedure. I found there were a good many points to be considered. This work represents seventy-two operations and twenty-three technics. The making of the sac is the hard part. I have three patients now who are waiting and anxious. One man calls me up once every month and wants to know how the dogs are. As soon as I get back home I am going to get some practical experience on him. It is an old idea that the spermatozoa from the epididymis are not motile. In my own experience they are practically all motile without admixture of prostatic fluid. If the operation is done aseptically, the rubber seems to heal in place nicely. If there is the slightest infection, the rubber will slough out. The results of artificial insemination have been excellent in the hands of such men as Bozzi and Iwanoff, who were willing to take the time and trouble to do this work in the proper manner. Bozzi obtained nine impregnations out of eleven attempts, the Iwanoff impregnated animals practically every time with sperms taken from the head of the epididymis.

THE DIRECT METHOD OF INTRALARYNGEAL OPERATION*

CHEVALIER JACKSON, M.D.

PITTSBURGH

In presenting the subject of the direct method of intralaryngeal operation, I do not wish to be considered as championing any particular method. Every laryngologist should be familiar with every method and select for operation in the particular case the method which suits best his personal equation for that case.

The indirect, or mirror, method can be used only in adults. Its greatest disadvantage is that in the guidance of the forceps it requires a movement backward when the image shows that a movement is needed forward, and for a diagonal motion it is necessary to combine a reversed anteroposterior movement with a true lateral movement. In the direct method, all movements are under the control of the eye and are made directly. This does not mean, however, that practice is not required. Many difficulties are to be overcome by continual practice before safe and accu-

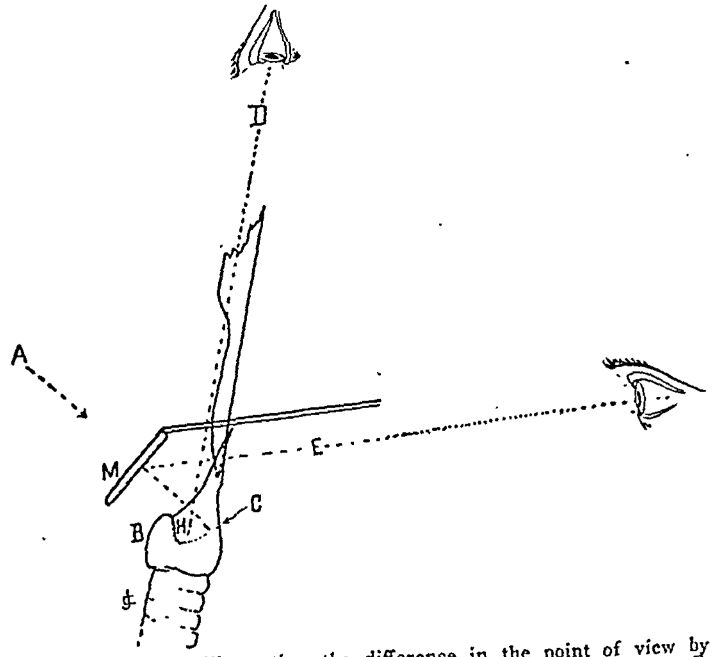


Fig. 1.—Schema illustrating the difference in the point of view by the direct and the indirect method. The observer's visual axis at *E*, looking into the mirror, *M*, gets an image as if he were looking from a point of the patient's head, *A*.

---

* Read before the Section on Laryngology, Otology and Rhinology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

rate operation is possible. To begin with, the gaging of depth by one eye only presents much the same problem as in indirect operating. All general considerations and the control and cooperation of the patient, as considered by my associate, Dr. Curtis, are, of course, equally applicable to the direct method. One point that seems not to be so well understood as it should be is the fact that the direct method affords a different point of view from that obtainable by the indirect or mirror method, which will be readily understood by reference to the schema, Figure 1. Moreover, the larynx being more or less drawn on, the upper orifice is elongated, the aryepiglottic folds are rendered more prominent, the epiglottis is invisible, being hidden by the tube, and the larynx is seen at its true depth instead of foreshortened as with the mirror.

In operations for any form of stenosis of the larynx in children, such as papillomas, subglottic edema, post-tracheotomic and postintubational stenosis, etc., the safety, promptness and accuracy with which intralaryngeal operation can be performed places direct laryngoscopy on a plane of advantage equaled only by its usefulness for diagnosis in these conditions. Great care must be taken in all endolaryngeal operations, direct or indirect, to impair laryngeal motility as little as possible, because as I have demonstrated, it is the tugging of the arytenoid on the cicatricial tissue that is the most important factor in the development of an adventitious vocal band.

Anesthesia.—For adults, I prefer local anesthesia with an 8 per cent. cocain solution supplemented by a few touches with a minute quantity of 20 per cent. solution to the interior of the larynx. In a few cases, for operations of extreme nicety, such as the plastic formation of adventitious vocal cords, and for the removal of benign growths which are obliterated by the ischemia produced by cocain, a general anesthetic may be necessary in adults. In children, the use of a general anesthetic in any case of stenotic laryngeal disease is extremely dangerous, because respiratory arrest is practically certain to follow as soon as the patient is sufficiently under the anesthetic to lose the aid of the voluntary accessory muscles of respiration. Tracheotomy, or what is very much better, the prompt insertion of a bronchoscope with artificial respiration and bronchoscopic oxygen insufflation, will save the patient's life; but in view of the hazardous nature of general anesthesia in this particular class of cases, which is out of proportion to the dangers of general anesthesia in the usual run of cases, I have always urged strongly in favor of no anesthesia. Cocain is extremely dangerous in children and as I have abundantly demonstrated, endolaryngeal operation is not painful and is so quickly done that anesthesia seems a needless risk. Particularly dangerous is the combination of chloroform and morphin, which are synergistic in the paralysis of respiration.

Position of the Patient.—For adults, under local anesthesia, the sitting position is preferable. Both patient and operator sit on stools, the patient being slightly lower than the operator. Sitting behind the patient is an assistant who supports the head preventing its rotation and preventing the patient from throwing the head backward (Fig. 3). If left to himself, the patient will naturally throw his head backward into the position of a man about to be shaved in a barber chair, which makes exposure of the larynx extremely difficult. An extreme forward position of the head and neck without excessive extension is preferable. The recumbent position is preferable in children. In operating on children without anesthesia, I have one nurse hold the knees of the patient down on the table; another nurse holds down both wrists, and the first assistant holds the patient's head high in the Boyce position of moderate extension. The degree of extension is less important than the very high position of the head (Fig. 4).

Instruments.—The operator should try all the different forms of instruments and illumination in order that he may take advantage of the particular instrument that best suits him in the particular case. I prefer the distally illuminated laryngoscope. The choice of instrument, however, is of less importance than that the operator shall have had adequate practice with it. For general operative purposes, I have found nothing superior to the tissue forceps shown in Figure 2, which have the great advantage of biting into the lateral wall with much greater facility than any form of sliding-punch forceps; lateral pressure cannot be made on a punch forceps, whereas the jaw of the tissue forceps will drag it laterally into the bite. I use duplicate forceps so that a fresh pair is handed to me immediately without delay for disengaging the extracted growth from the "basket" of the first forceps used.

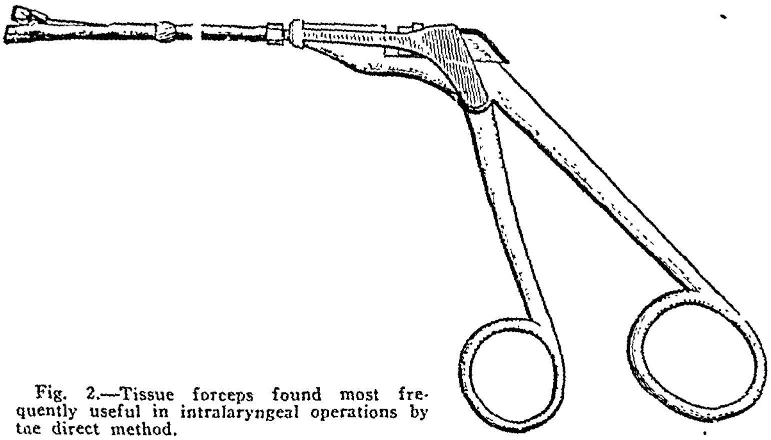


Fig. 2.—Tissue forceps found most frequently useful in intralaryngeal operations by the direct method.

Asepsis.—While we cannot sterilize the field, the patient's mouth should be thoroughly cleansed with a tooth-brush and rinsed with alcohol in 20 per cent. solution, which is the best non-toxic antiseptic. The patient's head is covered with a sterile cap having an opening opposite the mouth and the operator and all his assistants go through the regular operating room sterilizing technic. The operator should wear a mask for the protection of himself as well as the patient and should provide himself with protective glasses, or his regular glasses, in duplicate, to facilitate cleansing and replacement when spattered.

Technic. — To operate efficiently with forceps requires the coordinate movement of the left hand holding the laryngoscope, leaving the right hand free to use the forceps. In order to acquire this knack of coordination, it is necessary always to practice exposing the larynx, even when done only for diagnosis, with the left hand, never with the right. If this be done, not only is coordinate use of the laryngoscope and forceps in operating acquired, but the left hand develops the knack (rather than the strength) required for prolonged laryngeal exposure, should prolonged exposure ever be required.

Fist Stage.—The patient being in position shown in Figure 3, the operator, holding the laryngoscope in his left hand, while protecting the patient's lip by elevating it with his right index-finger, inserts the spatular extremity and depresses the tongue until the tip of the epiglottis comes into view (see schema, Fig. 5). Absolutely no effort should be made to see the larynx until the first stage of exposure and identification of the epiglottis is complete.

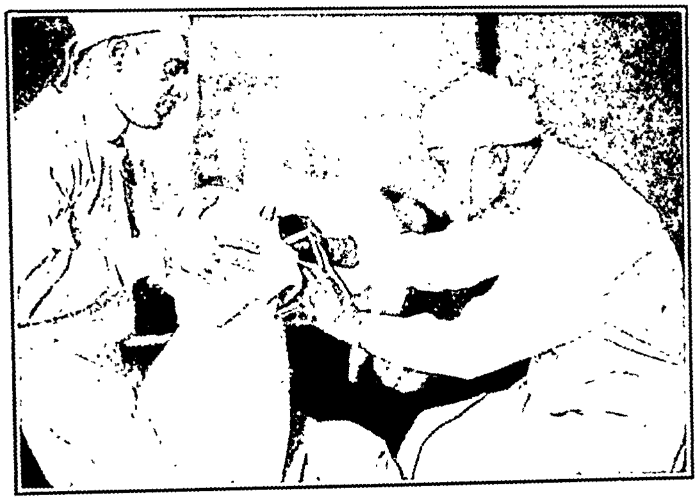


Fig. 3.—Position of adult patient and operator in intralaryngeal operation, first stage. After the epiglottis is exposed and passed, the patient's head is dragged downward and forward toward the operator.

Second Stage.—The spatular end is inserted slightly deeper, posterior to the epiglottis, being careful to keep the tube in the middle line, over the dorsum of the tongue. If the laryngoscope is inserted too deeply, the spatular end will get behind the arytenoid and the operator will be looking down toward the esophagus. In this event, it is necessary to start over again at the first stage.

Third Stage.—Exposure of the larynx consists in a downward and forward traction with the tip of the laryngoscope as shown by the dart in Figure 5. Under no circumstances should counterpressure be made on the upper teeth as a fulcrum. The patient's entire head must be pulled downward and forward with the laryngoscope.

Direct Laryngoscopy by the Lateral Route.—In the foregoing description, it is directed that the instrument be inserted over the dorsum of the tongue and kept in the middle line. This is essential until the operator has acquired the knack and is thoroughly familiar with all the landmarks. Considerable strength of wrist is necessary to cause displacement forward of the tissues attached to the hyoid bone, especially in stout and muscular subjects with short necks. In such patients it may not be possible to see the anterior commissure by that method. For all these reasons, I prefer the lateral route, passing the laryngoscope down at one or the other side of the tongue which rolls out to the opposite side and obviates the necessity of great displacement pressure. The side to be selected should be the one opposite to the involved laryngeal wall. By this lateral route, the anterior commissure can be exposed in any patient who can open his mouth, provided he be not allowed to throw his head backward, and provided the proper direction of traction downward and forward is maintained.

Removal of Growths from the Ventricle.—Growths whose origin is concealed in the ventricle are best exposed by the method which will be readily understood by reference to the schema, Figure 6.

Extubal Method.—For very large growths, the laryngoscope is used only to look through, the forceps being passed at the side of the laryngoscope and the closure of the jaws being under ocular control just beyond the tube mouth (Fig. 7).

Malignant Growths.—Following the initiative of Sir Felix Semon and Mr. Butlin, I have had such a high percentage of successes from thyrotomy in properly selected cases that I believe that to attempt endolaryngeal extirpation of a malignant growth would be a step backward. Therefore, endolaryngeal operation in malignancy is limited to the taking of a specimen for biopsy. For this purpose, the precision with which any desired portion of the neoplasm may be removed, along with sufficient normal tissue to give the histologist the best chance, has given to the laboratory report an approximate infallibility never before approached with the inadequate specimens usually obtained by indirect removal of a specimen.

Benign Growths.—In the removal of benign growths, the question arises whether it is better to slice the growth off even with the surface, or to bite into the apparently normal basal tissue. The first factor to be considered is the avoidance of any injury to the laryngeal motive mechanism. The arytenoids are particularly to be avoided and the muscular structures should be injured as little as possible. In case of growth involving the edge of the cord, it may be well to submit the matter to the patient for decision (Sanders), explaining to him that if the growths are sliced off even with the surface the chances of recurrence are greater than if removed more deeply, but deeper removal will temporarily impair the voice. Many patients will prefer a superficial removal, deferring more radical extirpation until recurrence takes place. This is especially true of professional voice users. Other patients dread the word operation and will choose radical removal as the best chance for avoiding a second operation.

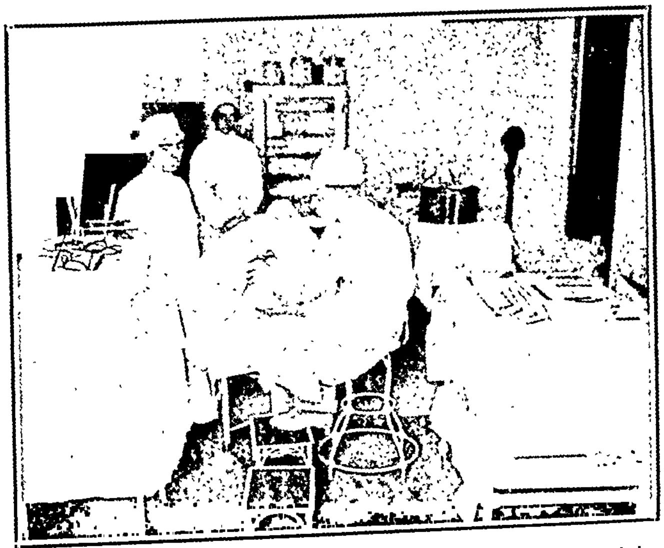


Fig. 4.—Position of patient and assistants for examination and intralaryngeal operation without anesthesia in children.

Papillomas.—Papillomas in children are by far the most common of all laryngeal growths. Thomas J. Harris[1] has had excellent results from the use of radium applied by the direct method.

---

[1] Harris, Thomas J.: Proc. Internat. Med. Cong., Sect. 15, London. 1913.

Harmon Smith[2] has had excellent results from fulguration.

The method which has yielded the best results in my clinic is removal with the forceps through the direct laryngoscope, repeated as frequently as necessary to nip off all recurrences in the bud. A little of the basal, apparently normal, mucosa is removed along with the growth. The superficially cicatricial mucosa which eventually results is an exceedingly unfavorable soil for the growth of papillomas, and recurrences cease after a number of removals. Occasionally a single removal is successful, a number of cases being known to be free from recurrence at the end of from one to eight years. In the majority of cases, however, many removals are necessary; but as they are done without any anesthesia, general or local, frequent operation at close intervals is unobjectionable. After a few sittings, most of the children do not resist or even cry. In the interval between operations, the local application of alcohol, as recommended by Delavan many years ago, hastens the hardening process. An alcoholic solution of salicylic acid, used by E. L. Jones, is also an excellent application.

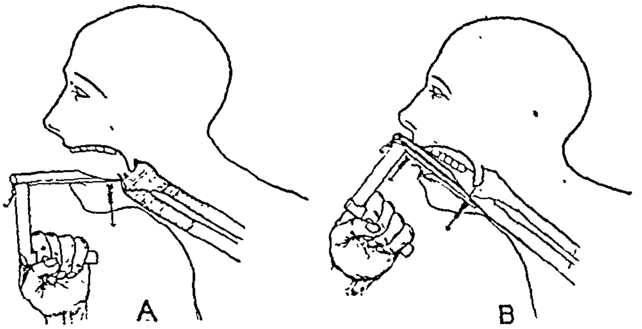


Fig. 5.—Schema showing the first and third stages of laryngeal exposure. At *A*, the tongue is seen depressed as indicated by the dart, causing the epiglottis to project into the line of vision. The second stage, not shown here, consists in a deeper insertion of the tube. At *B* is shown the third stage, the drawing forward of the epiglottis and all the tissues attached to the hyoid bone with the tip of the spatular end. The left hand is always used for holding the laryngoscope.

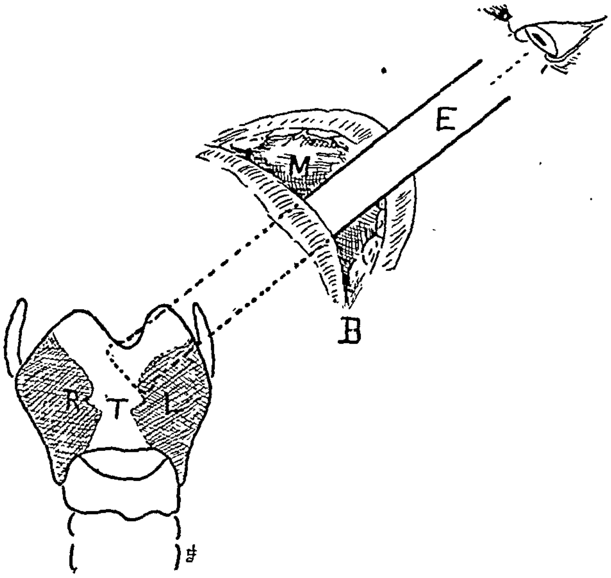


Fig. 6.—Schematic illustration of manner of exposing a tumor located in the laryngeal ventricle. The larynx is fixed by the hand of an assistant externally while the head of the patient is drawn down laterally to the side opposite the ventricle containing the tumor.

It is necessary to remember that there are two general classes of cases: In some instances a single removal is sufficient; in others a most stubborn tendency to recurrence is manifest, papillomas of children being more persistently recurrent than those of adults.

Laryngeal Stenosis.—Laryngeal stenosis, when hypertrophic in character, may be excised with the forceps when it overhangs the upper orifice of the larynx. Subglottic hypertrophic stenosis, as I have abundantly demonstrated, is readily amenable to galvanocautery treatment, the incisions being parallel to the long axis of the trachea and into the most prominent portion of the hypertrophy. Care should be taken not to cauterize deeply and not to touch the cords.

Laryngeal Tuberculosis.—Galvanocautery puncture for the treatment of laryngeal tuberculosis in all patients whose pulmonary condition is not too far advanced has yielded excellent results when indirectly applied by Heryng, Hajek, Mermod and Bar. Intralaryngeal applications as shown by Kahler can be made perpendicular to the surface by the direct method instead of the more or less linear application usually made with the mirror. This disadvantage of the indirect method can be overcome by using the right-angled point as advocated by Sir St. Clair Thomson.

Cicatricial and Congenital Webs of the Larynx.—Webs may be removed by the punch forceps provided there is a large redundancy of tissue. When the web is thin and tense, without redundancy, the incision with a view to the plastic formation of an adventitious vocal band, using the long straight direct laryngeal knife, will yield most excellent results as to the cure of the stenosis and restoration of the voice.

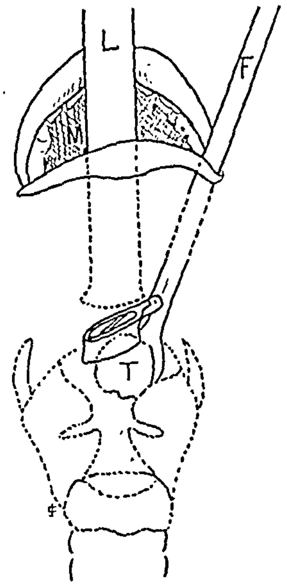


Fig. 7.—The author's "extubal" method for endoscopic removal of the epiglottis and growths originating in the upper orifice of the larynx. This method renders easy the removal of very large tumors that formerly required subhyoid pharyngotomy. It is not used for small growths. The forceps, *F*, seize the tumor, *T*, under guidance of the eye looking through the tube, *L*.

CONCLUSIONS

1. The direct method is the only one by which the larynx in children can be operated on.

2. The indirect, or mirror, method is applicable only to adults. The reversal of the image sagittally, without reversal laterally, compels the operator to develop the ability to move his forceps backward when the image appears to require the forward direction; and, more difficult still, is the necessity to combine for diagonal movement a reversed anteroposterior with a true lateral movement.

3. The difficulties to be surmounted by the direct method of intralaryngeal operation require prolonged and constant practice, but not nearly to the same extent as required by the mirror method.

4. No anesthetic, general or local, is necessary for operations on the larynx in children. In them, cocain is dangerous in any case, and general anesthesia is absolutely contra-indicated in all cases with even the

---

[2] Smith, Harmon: Laryngoscope, February, 1909.

slightest degree of laryngeal stenosis. Local anesthesia should be used in adults, general anesthesia, preferably with ether, being required only when cocain is contra-indicated or when the ischemia accompanying its use causes the growth to shrink to such an extent as to hinder accurate removal.

5. No one method can be said to be best for all cases and all operators. The laryngologist should try all methods and instruments so that he may decide for himself what best suits his personal equation and be prepared to use the method which, in his hands, is best adapted to the particular case.

6. Finally, any one who has the skill of Holbrook Curtis in the removal of benign growths by the indirect method, or of Thomas J. Harris in the indirect method of application of laryngeal galvanopuncture, will have no need of the direct method of intralaryngeal operation in adult patients.

Ninth and Penn Avenue.

INDIRECT INTRALARYNGEAL METHOD FOR REMOVAL OF BENIGN NEOPLASMS *

H. HOLBROOK CURTIS, M.D.
NEW YORK

In his book on diseases of the throat, Solis-Cohen[1] quotes two cases of removal of laryngeal growths through the mouth, one by Koderick of Brussels in 1750, the other by Green of New York in 1845. These were done in antelaryngoscopic days, but no details are given. In the literature, but seventy cases are mentioned before the invention of the laryngoscope. In Sir Morell Mackenzie's list of 100 cases of laryngeal tumors operated on by him, and reported in 1880, sixty-seven were said to have been papillomas. Of sixty-six consecutive cases operated on by Solis-Cohen, reported in 1871, forty-eight were assumed to be papillomatous in origin.

According to Cohen and Mackenzie, next in frequency occur the fibromas. Moritz Schmidt, however, quotes the frequency of fibromas to papillomas of the larynx in 32,997 clinical cases examined to be 256 to 46; they usually occur singly and are apt to be redder in color and are not usually pediculate. Myxomatous fibromas are usually larger, attaining the size of a Lima-bean or even greater. They are generally pediculate and paler in color; they may be globular or pyriform in shape, and occur on the epiglottis as well as on the cords. They are rarely encountered. True myxomas are also but seldom found. Sir Morell Mackenzie reports but one in his 100 consecutive cases of laryngeal growths. They are translucent semipink or reddish, and generally pediculate, varying much in size. Their most frequent seat is in the anterior commissure of the cord.

Angiomas are purple in color and occur on the ventricular bands and epiglottis, rarely on the cords.

Lipomas may occur on the arytenoids, epiglottis or ventricular bands. They are characteristic yellow tumors.

Cystomas may occur on the epiglottis or on the ventricular bands and more rarely on the cords. They are usually sessile, translucent and pale in color, and of semifluid contents.

Chondromas are made up of hyaline cells and are cartilaginous in origin, usually springing from the cricoid, thyroid, epiglottis or arytenoid cartilages.

Singers' nodules (chorditis nodosa) occur on the vocal cords at the junction of the anterior and middle third; they are usually bilateral and are composed of stratified epithelium.

Polypi present the appearance of the usual polyp.

Pachydermia are of epithelial origin and attain a much larger size than an epithelial nodule on the cord. They are found most frequently in the posterior portion of the cords, invading the respiratory tract. A peculiar characteristic seems to be that they are usually bilateral, and the conical apex of one fits into a depression in the other, or in case they are on one cord, the hard apex makes a corresponding depression in the other band.

Sarcomas present no especial feature to the unaided eye. Cohen states that removal of a benign growth through the mouth is much less apt to terminate fatally than through external openings and that recurrence is less likely to follow.

Sessile papillomas are apt to return after operative procedure, if the seat of the wound is not sufficiently cauterized after the removal of the growth. This may be accomplished by Tobold's concealed silver nitrate stick, or by chromic acid fused on a laryngeal probe.

The instruments used for removal of laryngeal growths by the indirect method have not been improved on very much since 1880. The methods of removal advocated by most writers include the forceps, cauterization by acids or silver nitrate, and by the galvanocautery. In the local treatment of papillomas, Dundas Grant has spoken well of the continued application of a 2 to 5 per cent. solution of salicylic acid in absolute alcohol, while Delavan has reported a case of multiple papilloma cured by a spray of absolute alcohol used six times daily.

In speaking of the growths which occur in the larynx, it is not my intention to advocate the indirect intralaryngeal method in their removal. I have been asked simply to demonstrate the possibilities achieved by deftness as a result of experience, and speak of the instruments which are generally employed.

Of the numerous instruments invented for the removal of laryngeal benign neoplasms, we must first mention the laryngeal snare of Carmalt Jones, and that of Gibb, and also the port-caustic of Jarvis, and that of Tobold, as well as the sponge probang first mentioned by Voltolini. Fauvel was the first operator to devise the laryngeal forceps, which were modified and improved by Sir Morell Mackenzie. These are described by Lennox Browne.[2] The guarded forceps of Dundas Grant is an instrument of special value in the removal of pediculate growths on the cords. The universal forceps of Watson Williams are in certain cases to be recommended. Sir Morell Mackenzie's cog-wheel ecraseur must not be overlooked nor the various snares of many other authors, described by Watson Williams.[3] Curets are of use in removing growths of a sessile variety, and those occurring beneath the anterior commissure. Heryng has constructed a variety of these, as have many operators. The Krause-Heryng double curet forceps[4] are used in

---

* Read before the Section on Laryngology, Otology and Rhinology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

[1] Solis-Cohen: Diseases of the Throat. New York, William Wood & Co.

[2] Browne, Lennox: Throat and Nose, Ed. 4, 1893, p. 131.

[3] Williams, Watson: Diseases of the Respiratory Tract, 1901, p. 224.

[4] Ballenger: Diseases of the Nose, Throat and Ear, p. 522.

Europe, but seldom in this country. The first of this kind of forceps was invented by Stoerk, and modified by Schroetter, both of Vienna; Mackenzie,[5] who describes them in his text-book, also invented a tube forceps, a wire within operating on one or both blades. Gottstein's laryngeal forceps[6] had their place in the evolution of the instruments employed in the early eighties. To-day, however, we have gone back to the general shapes of Fauvel and Mackenzie, and I will present some of the modern modifications of the same, and especially the universal handle of Meyrowitz with laryngeal and sphenoid tips of Krauss and Cordes.

Various forms of epiglottis lifters have been devised for the better observation of the larynx during operative procedures. Among the best are Mount Bleyer's and Escat's.[7] These instruments are of the greatest assistance in cases in which an overhanging epiglottis is encountered. A downward and forward pressure at the base of the tongue in front of the epiglottis causes the latter to assume the perpendicular. These instruments are very useful in cautery work.

The preparation of the patient for operation is a simple one:

Cleanse the throat and larynx with an alkaline spray, and then spray into the larynx a 4 per cent. cocain muriate solution in small quantity. Touch the uvula, pillars and posterior pharyngeal wall with the same solution with a cotton applicator, and massage these parts with the applicator to accustom the throat to the feel of the instrument. Have the patient hold out the tongue with a napkin, or have an assistant, in case the epiglottis is in the way, use an Escat epiglottis lifter. The head of the patient should be steadied by a nurse and the instrument introduced, by daily practice if necessary, until all fear on the part of the patient is overcome. In operating it is well to educate the patient to use the vowel sound *A*, changing to *E* without moving the tongue. The *A* changing to *E* brings the cords on the highest plane possible, and gives the best view of them in their fullest extent. Then without dropping the cords and in the *E* emission, at the command, "Now," the patient should be taught to take a deep breath suddenly without making any sound or body movement, and with complete relaxation. At that instant the forceps are introduced and the growth is seized. This applies to subglottic growths and those on the border of the cords. Growths situated on the upper surface are removed during the *E* emission. It is surprising how skilful one may become in this procedure, so much so, that having habituated oneself to this method, direct laryngoscopy seems really more difficult.

---

[5] Mackenzie: Diseases of the Throat and Nose, 1880, p. 187.

[6] Bosworth: Diseases of the Nose and Throat, 1892, p. 735.

[7] Grant, Dundas: Brit. Jour. Laryn., Rhinol. and Otol., December, 1904.

The Pulpit on the Medical Profession.—As St. Luke's day fell on Sunday this year (October 18), the "praise of the physician as the servant of God" was the theme of many sermons. Dr. Prince of Chicago spoke from this text, saying that "the tendency in certain circles to-day to ignore the physician is a monstrosity." He compared the physician to the Panama Canal, the link uniting the ocean of man's need with the ocean of the power of God, defining the power of God in part as the "mastery of the spirit over the body." He said that the gain in the last fifteen years is this, namely, that "we have ceased to defend the absence of miracles in modern days. The 'faith' of many persons does not reach beyond the physician, but to ignore the physician and his science is to ignore the provisions of health, just as if we should ignore and do without the sunshine."

METHOD OF SUSPENSION (KILLIAN)

DEMONSTRATION OF THE LATEST FORM OF THE APPARATUS *

ROSS HALL SKILLERN, M.D.
PHILADELPHIA

CHOICE OF ANESTHESIA

After trying cocain, scopolamin and ether I and my associates unhesitatingly state that ether is by far the anesthetic of choice. Scopolamin has not been a success in our hands, although the technic as laid down by Killian, with even greater dosage, has been adhered to. Whether this lack of sufficient action has been due to the drug or to the difference in racial characteristics between the German and American, I am at loss to say. In our cases the patients were made only drowsy although 1/200 grain was twice and even three times administered in conjunction with morphin (1/64 grain), and in each instance it was necessary to resort to ether. The best form of administering the ether is the colonic method. The patient need not be apprised of the fact that he is being etherized and in this manner no apprehension on his part need exist.

DIFFICULTIES ENCOUNTERED

1. *Patients*—In order to procure a perfect view of the glottis it is almost necessary that the patient have a long, slender and supple neck. On this account this method of procedure is particularly adaptable to children as in practically every patient under the age of 12 we have been able to procure a good view of the anterior commissure. In short, thick-set individuals it is particularly difficult, and in older people with arthrosis it is absolutely contra-indicated. A good idea of its practicability on a given individual can be obtained by first endeavoring to examine him with the direct laryngoscope.

2. *Lights*—Either reflection from the indirect mirror, the headlight, or a light on the apparatus may be used. In our clinic the latter has been almost exclusively applied with almost complete satisfaction so far as illumination is concerned. The only fault at present is the tendency to slip off the mouth-piece and always at the most inopportune moment. If this mechanical fault were eliminated the device would be practically perfect.

3. *Operating-Room*—A special room is a great advantage although not absolutely imperative. The table on which the apparatus is fixed must be suitable for the purpose and adaptable to raising and lowering, as the operator is seated and must have his eyes on a level with the long axis of the patient's trachea. Arrangement of the theostat, instrument tables, etc., should always be approximately the same. A most important factor is darkening the room. In many of our modern general operating-rooms this is impossible.

INTRODUCTION OF INSTRUMENT

Care must be exercised in introducing the spatula, otherwise the following accidents may occur:

1. The spatula may not be deep enough, thus forcing the base of the tongue backward and obscuring the view to the glottis.

2. The spatula may not be in the median line of the tongue, causing a lateral bulging.

---

* Read before the Section on Laryngology, Otology and Rhinology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

3. The spatula chosen may be too short so as to prevent the epiglottis holder from properly acting.

4. The clamp on teeth must be fixed and padded, otherwise the incisor teeth may be forced loose.

5. The spatula must not be forced into the mouth as the posterior pharyngeal wall may be lacerated.

6. While the patient is swinging, coughing must be guarded against as the hook may be thrown off the bar.

7. The patient in swinging position should have the shoulders resting on the table.

ADVANTAGES

1. A direct view of the larynx is continually present.
2. The operator is seated in a comfortable position.
3. The field is continuously illuminated.
4. A sufficient amount of working room for both hands is obtained.
5. The upper air-passages cannot be flooded with blood.
6. There is no danger of inspiration of blood or pieces of tissue.

PARTICULAR INDICATIONS FOR USE

1. Removal of intralaryngeal growth and hypertrophies.
2. Removal of foreign bodies in larynx and mouth of esophagus.
3. Curettage of larynx.
4. Diagnostic purposes.

2032 Chestnut Street.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. CURTIS, JACKSON AND SKILLERN

Dr. Robert Levy, Denver: The present generation, as distinguished from the older one that was expert in the indirect method, and that studied under the old masters, has something also to offer in the way of laryngologic skill. Among the younger men there are many whose early training, even within the past ten years, was sufficient to enable them to remove intralaryngeal growths by the indirect method. This in no way detracts from the importance of the direct method and the work of the early operators, but there is still much attention paid in the training of our specialists to the use of the mirror and manipulation by the indirect method; so that while the number of experts with the direct method become more numerous, nevertheless there are more men who are expert in the use of a mirror and the indirect use of the forceps than with the instruments used in endoscopy. So long as our teaching still enables us to perform operations with the mirror this method of removing growths and performing other manipulations within the larynx must of necessity continue. I would not in any way detract from the advantages of endoscopy. Many improvements have been made in the instruments since 1880 and Curtis has shown some. The double curet particularly is a great improvement. Another instrument of great value is the Schlinamann forceps, an instrument which has at its extremity a small curve, so that the instrument may be placed in any position. It is capable of great nicety of manipulation. The overhanging epiglottis may be controlled by the Escat depressor but more satisfactorily in some instances by putting a ligature through the epiglottis. Then it is absolutely under control. This is particularly useful in operating under general anesthesia. Another method of operating within the larynx and one especially useful in large tumors is by means of the snare used in the following manner. Through the loop of wire one passes first a pair of laryngeal forceps the handle of which may be locked. The tumor is firmly held by the forceps and the snare-loop drawn completely over the growth. Gentle traction by an assistant draws the tumor by means of the forceps well into the loop at the same time that the operator passes the loop around the tumor. In this way the complete removal of a sessile growth is readily accomplished. One method Dr. Skillern did not speak of, though I am sure he has it in his paper, is that of bringing the anterior commissure into view by making counter pressure over the thyroid cartilage; another thing is that suspension is especially valuable in the case of children. There is no other method by which the child can be so easily operated on as by this one. With reference to anesthesia, Dr. Skillern said he used ether by preference. I question whether he would administer ether in every case to an adult on whom he desired to perform some simple procedure under suspension.

Dr. Harris P. Mosher, Boston: Naturally, when this procedure came in, rather extravagant claims were made for it. It has been in use now for a number of years and I think the consensus of opinion is that we need to modify those claims but little and that is saying a great deal for a new procedure. It is one of our great advances in the work on the larynx and upper end of the esophagus. Dr. Murphy said to me when this first came out, "What we need is simplification of the apparatus." It is rather complicated. If we can simplify the instrument or procedure in any way, it will be well worth while. I am familiar with the open speculum and tried to do what I could to modify that speculum and I think I can claim that now in 90 per cent. of cases it will work for this method of inspecting the larynx. When the procedure was introduced it was to be used under cocain. I am glad it has been changed to a procedure under general anesthesia, because I work practically always with general anesthesia. The satisfaction of seeing the cords right in front of one and of watching the rhythmic movements is beyond expression.

Dr. Lynch of New Orleans, who recently read a paper at the meeting of the Laryngological, Otological and Rhinological Society, has markedly extended the procedure and has devised instruments for dissecting out growths, papillomas, etc., in the larynx, and I feel that that is a great advance in the use of the suspension method. As for the removal of tonsils in this way, every one who speaks of it says that the tonsils can easily be removed by the suspension method.

Dr. Sidney Yankauer, New York: I have used the suspension apparatus ever since it was first brought out by Killian and I endorse all that Dr. Skillern has said about the advantages of the use of this method for intralaryngeal work. I do not quite agree with Dr. Skillern about the particular instrument used. I had the original instrument as it was first brought out by Killian, and also this later model. The later model is much more complicated than the original and I find that with the original instrument and spatula I can bring the anterior commissure into view in practically every case without making counter pressure, and in every case with the aid of counter pressure. With the newer apparatus I haven't been so successful in this. The epiglottis lifter seems to be rather in the way. The tooth plate on the newer apparatus is larger and longer and gets in the line of vision. Killian uses the method very much in the removal of tuberculous lesions, which are generally in the anterior commissure. About a year ago I operated in a case of carcinoma of the epiglottis and the manner of the removal of the growth was so entirely different from anything that could have been previously done and the success was so much greater than by any other method that there was no question about the great advantage of this method. At the recent meeting of the Laryngological, Otological and Rhinological Society the removal of foreign bodies by the introduction of the bronchoscope with the suspension apparatus was spoken of. Some time ago I had a case of a tumor on the posterior wall of the trachea and tried this method. While I was able to remove the growth I was not quite satisfied with the aspect of the posterior wall and tried to introduce the tube, but the larynx first comes forward and then makes a bend downward and I could not get behind that curve with the tube. Recently a patient was seen who said he had swallowed a fish bone. It was just below the cricoid cartilage. It was removed under local anesthesia by the suspension method. I can endorse what Dr. Skillern says about the introduction of the open tube into the esophagus being easier with the suspension apparatus, as it partly opens the esophagus, but after the entrance of the tube all advantage of the suspension method is lost and it is in the way. In the case in question I failed to see the foreign body and could only see the anterior wall and part of the lumen; I could not see the posterior wall. Therefore, the only advantage in passing the esophagoscope with the suspension method is the ease of introduction, but by this the mobility of the tube is sacrificed. If the extraction is difficult or the foreign body is against the posterior wall, the suspension apparatus interferes with movement of the tube and that is a very important objection.

Dr. Thomas E. Carmody, Denver: I am glad to hear Dr. Yankauer speak of operating on the epiglottis. I have used this instrument about fifteen months and have examined some cases of tuberculosis in which we wished to remove the epiglottis, but being more familiar with the indirect method I used that. The experience of Dr. Yankauer as to impaired movement of the esophagoscope after introduction with the suspension apparatus has been mine also. There are two modifications, one of Lockard's, which has an eyelet so that the horizontal portion can be separated; the other is a vulcanite rubber pad on the tooth plate. This must of necessity be of the soft or velum rubber so as to conform to the shape of teeth or anterior part of the palate.

Dr. E. J. Bernstein, Kalamazoo, Mich.: We are indebted to Dr. Curtis for his views regarding singers' nodes and his method of treating them. Just how much does Dr. Jackson think there is in Dr. MacKenzie's criticism of taking off a slice of growth for diagnosis? Most of us feel there is great danger in excising a portion of any growth for diagnostic purposes, as it may likely cause absorption by the lymphatics and bring about metastases elsewhere. I know such is the view in major surgery. In removing the breast for malignant growths, the surgeons first attach and tie off the arteries, veins and glands remote from the breast and cut wide and away from all involved structures.

Dr. H. W. Ridpath, Indianapolis: One can readily see that, in the removal of tonsils by the suspension method, the stretching open of the mouth in this position will bring considerable tension on the anterior and posterior pillars. That forces a portion of the tonsil into the median line and it will be found that the superior portion of the tonsil is drawn back into the cavity; therefore, in enucleating tonsils by this method one must be careful to get the superior lobe out, as otherwise it will be overlooked. One other point. We have in our clinic several patients in whom the tonsils had been partially removed or massacred by some other operator, and who were brought in to the hospital in a serious condition as to bleeding. On two occasions it was impossible for us to stop the bleeding by ordinary means, due to the amount of hemorrhage. The patient was put in the position in which blood would go down into the postnasal space and one could get a clear field and ligate without difficulty. One of our patients I am sure would have bled to death if we had not as a last resort used this method.

Dr. Otto T. Freer, Chicago: The direct method of entering the larynx has merely added to our powers, it does not supplant the older way of operating with the mirror; and to be an expert the operator must be trained in both methods. The use of the spatula tubes employed for direct laryngoscopy puts a strain on the muscles attached to the hyoid bone and on the thyrohyoid and hyo-epiglottic ligaments. This strain is borne by some patients with but little discomfort, but others suffer a good deal when much force is needed to get a direct view. However brilliantly done, direct laryngoscopy is a forcible entry into the larynx, while the indirect method has the advantage of entering along the natural curves. It is therefore incomparably the more elegant and gentle way and merely because he has not learned it, the operator has no excuse to turn to the rougher direct way in order to remove a papilloma from the cords or a foreign body from the larynx. I reserve the direct method for cases in which I cannot operate with the mirror as in the case of children. In younger children, because of the smallness of their laryngeal lumina and their ready closure by swelling, it is best to precede an intralaryngeal operation, as for laryngeal papilloma, for instance, by a tracheotomy. I have always used this precaution, and twice, once in an operation on a child for laryngeal papilloma and again in a case of a bone in the larynx, although all gentleness and speed were used, the larynx closed by swelling for a day or two and I was glad that I had my tracheal tube in place. I have heard of others, good operators, who have had to do a hurried tracheotomy after an intralaryngeal operation on a child and in one case the operator was too late. In holding the cutting forceps for operating with the mirror it is customary for many to enter the rings of the usual scissors-handle by placing the thumb in the uppermost ring. This hinders wrist flexion and so prevents the operator from reaching the anterior commissure with the beak of the forceps. When the thumb is placed in the lower ring and the index finger in the upper, flexion becomes easy and all parts of the larynx can be reached without effort.

Dr. George F. Cott, Buffalo: One point which has not been brought out is the matter of tolerance of the larynx in children; how long will it tolerate manipulation? I had a sad experience in this connection: a child had a key in the esophagus for a week. I introduced the esophagoscope but could not find the foreign body, although roentgenoscopy showed where it was. The swelling was so great I could not see it. I worked a half hour and then decided to do a lateral esophagotomy, which I did. It took but a short time and the key was removed, but that night the child suddenly died without any apparent cause. I found out later that another physician had worked on the child for an hour or more by the indirect method before I saw it. Had I known that, I would not have subjected it to such a continued shock.

Dr. A. B. Thrasher, Cincinnati: Dr. Curtis has partially repaid a very old debt which we laryngologists have so long owed to a singing-teacher, E. Garcia, for the discovery of the laryngoscope. Now a laryngologist teaches the proper singing method for the prevention and removal of singers' nodes. I turn these cases over to a singing-teacher with the instructions which Dr. Curtis has given us.

Dr. W. B. Chamberlin, Cleveland: Although my early training and instruction was in the indirect method, I have used the direct method almost from its beginning. I am in favor, however, of the indirect method in suitable cases. It is certainly a much less formidable operation than the direct method. I fancy that if any one of us were offered his choice of the methods on himself, he would unquestionably choose the indirect, granting, of course, that it were applicable to the particular case. Not long ago I was able to remove very easily a pedunculated tumor from beneath the cords at the anterior commissure in this way. There is an opinion among men who have been trained in the direct method that the indirect method is difficult. That is not so. It is no more difficult than the methods which the dentist uses every day in his operations on the teeth. Take a wide-mouthed morphin bottle, cover it with dark paper, and on the bottom sketch a larynx, then place a shot or pin in any position and one can practice the indirect method to one's heart's content.

Dr. Burt R. Shurly, Detroit: Those of us who have used the indirect method for many years have a certain amount of sentiment concerning this method, and we sincerely trust that it never will become a lost art. There are a great many things one can do by this method first, and then if not successful one can use the direct method if necessary.

Dr. C. G. Dwight, Madison, Wis.: The otolaryngologist who lives in a large city knows very little of the disadvantages encountered when the general surgeon has first had the case. Most of my work is in the removal of foreign bodies. I had in one case a Catholic sister who had lodged in her throat a black-headed pin such as they use to fasten their bonnets. The patient had been in the hands of a general surgeon three hours before I was called to see her. The pin was lodged straight across and imbedded. Of five different instruments none were powerful enought to detach it because it was so firmly imbedded. I broke two instruments in the attempt. This led me to devise an instrument which is useful for grasping pins of this type. The delicate instruments we have for grasping growths, etc., are very perfect, but we need something stronger to remove these firmly-imbedded things.

Dr. Holbrook Curtis, New York: I am glad to see that there are so many advocates of the old method. I agree with Dr. Freer that we should be expert in both. No laryngologist can afford to neglect the opportunities in which he can use the indirect method. With regard to practicing the indirect method, I have taken an old pin-cushion and put it at the bottom of a three-inch iron tube and then practiced picking the pins out one by one, using a laryngoscope and forceps.

Dr. Chevalier Jackson, Pittsburgh: In reply to Dr. Bernstein's question with regard to the removal of a specimen in malignant cases, as Sir Felix Semon pointed out years ago, it is unwise to remove a specimen in any case that, clinically, seems to be malignant unless the patient has consented to immediate operation in the event that the specimen proves malignant. The question should be submitted to the patient beforehand. If he declines external operation, which is the only route in malignancy, then no specimen should be taken. If consent has been obtained, preparation must be made to operate immediately, as soon as we get the report on the frozen section, which we can get now on the same day that the specimen is taken. There is little risk of metastases resulting if operation immediately follows.

Dr. Ross H. Skillern, Philadelphia: Dr. Levy spoke of this method not being used in the simple procedures in the larynx, such as making examinations and removing papillomas, under ether. We have tried it without ether and have succeeded. So far as Dr. Mosher is concerned, he is too modest to state that he perfected an instrument of his own and had I seen it first the Killian instrument would not have been in our armamentarium. I had the pleasure of seeing his work, and later the work in the Chariteé in Berlin, the home of this method, and had I to have the method used on me I should prefer to go to Boston. As to the removal of foreign bodies by this method, we have in the last month removed a number of such bodies and it progressed very nicely, except the last case, a penny in the esophagus. We saw it very beautifully and demonstrated it to several physicians in the room with a great deal of pride, but the pride went just before a fall because when we went after it it went down and down and finally passed into the stomach. Dr. Ridpath spoke of the enucleation of tonsils by this method. In that respect one thing is notable: the remarkably small amount of hemorrhage when this method is used. It is due to pressure on the tongue and some of the vessels that supply the tonsil. As soon as we take the tonsil out the blood seems to start up but is soon controlled. Dr. Freer spoke of the matter of soreness of the throat after the employment of this method. In 100 or 150 cases the children did not complain of any particular soreness. I have asked them frequently. Some of the adults complained of a certain amount of stiffness in the neck. I am not advocating any particular method in every case. We must select the method that is suitable for the case in hand.

The Medical Profession and the Eradication of Disease.—People say there must be a "nigger in the woodpile" somewhere, that the medical profession should strive to reduce illness, for it is thereby they make their living. I will acknowledge the doctor is a queer beast, but his mission in life is not to accumulate any great wealth, but to eradicate disease, and that alone will make him happy. I deny most emphatically that money is the strongest motive that moves the mass of mankind. I will admit that anything that requires money is not easily accomplished, but a good lawyer, if you will go to him with your case, will advise you in the majority of instances not to litigate, and a good preacher will try to save your soul before it gets past saving; and the good doctor rejoices much when he can keep you well.—Victor C. Vaughan, *Jour. Indiana State Med. Assn.*

HEALTH SERVICES IN AMERICAN COLLEGES AND UNIVERSITIES

WARREN E. FORSYTHE, M.D.
Staff Physician on the University of Michigan Health Service
ANN ARBOR, MICH.

The wide-spread interest in the economy of health conservation has placed this consideration of medicine on a sound basis. The means to this end are being socialized because it is of public concern. It is significant that this broad consideration of health and disease has crystallized early around our educational institutions.

In our colleges this work has assumed the form of variously organized health services. These services provide for care of individual sick students, but recognize instruction, inspection, and the preservation of health as equally important work.

GENERAL METHODS

All university health services have certain uniformity of methods since they have similar aims in view. Differences apply to peculiar local conditions and policies.

A general policy is to provide easily accessible medical attention to the student, with instruction and preventive service. Medical attention is also provided for the faculty and officers in a few services.

The staff usually consists of a university physician, health officer, or medical adviser, as he is variously designated, with assistants as required, often including a woman physician.

A committee of the faculty often serves with the staff as directors.

At most places convenient quarters are provided where examinations and office treatments are supplied. A number of services provide for bed patients in student hospitals spoken of as infirmaries. A medical department in a school is a great help to the student service.

The expense of this work is usually provided for by a general student fee. The connection of staff members with the teaching faculty provides for part of the salaries, from the institution.

ENDOWED AND PRIVATE INSTITUTIONS

The older health services at the endowed schools have as a rule been slower in development and more conservative in their policies than the leaders among state universities. As a class they have better infirmary facilities, but are less active in dispensary and inspection work.

Princeton

Since 1893 an infirmary has been maintained at this institution for the exclusive care of students in illness. There have been recent plans for a new building in the work. The infirmary is endowed and has about thirty beds. Hours are kept for office consultations, which average about fifteen daily. There are 1,500 students, who pay an annual fee of $7 each, for which they receive consultation and treatment with limited time in the infirmary where at request they may have local physician of choice and special nursing at their own expense.

There have been about four hundred bed patients annually. The examination of freshmen at the gymnasium is especially well done by Dr. Joseph Rycroft, who is much interested in this work. General inspection has been provided for by the local health officer, whose salary has been paid in part by the university. Dr. Conochan is in charge of the clinical work.

Harvard

The service was established here in 1894. It is now in charge of Dr. H. M. Bailey, who has no assistants and devotes most of his time to the work. Students at Cambridge pay $4 a year as general tax, which provides for office consultations, treatment and limited care in the infirmary. Dispensary consultations average about twelve daily, including calls at the rooms as requested. The dispensary is located in one of the dormitory buildings on the campus.

The infirmary is a splendid new building, well endowed and thoroughly modern in every respect. It has sixty-five beds, about one half of which can be used for isolation purposes. Patients are given ordinary nursing except as they provide for themselves. They usually have outside physicians while in the infirmary, although the university physician cares for those unable to pay. There is an average of about five hundred infirmary patients annually.

Examination of entrants is done by the physical director, and is limited to a consideration of their physical exercise and athletic work. No lectures in hygiene are required.

Cornell

Since 1911 an organized service has been in operation at Ithaca. A general fee of $6 is received from about 4,600 students. Three physicians, including one woman, see an average of sixty patients daily for consultation and care of minor troubles. Major cases requiring continued treatment are referred to local physicians. Advisory calls are made at the rooms.

An infirmary is maintained with sixty beds, where two weeks' ordinary care is given. Patients pay physician of choice for all services, medicines, and supplies. There were 1,041 bed patients during the last year. Examination of freshmen is compulsory and lectures on hygiene are optional. The service has complete medical care and examination of athletes. Dr. S. Munford is in charge.

Columbia

A service has been established here during the past year. Dr. W. H. McCastline keeps hours twice daily, caring for about thirty students. A well-equipped dispensary is maintained in one of the campus buildings. The service is rapidly extending although there has been no definite provision whereby the service can give infirmary privileges to bed patients. No fee has been charged of the student as the dispensary has been established and maintained by the university. Examination of entrants is limited to that in the gymnasium, and no general lectures in hygiene are required.

Yale

The conservatism in this work is especially felt by those most interested in the health of the students at Yale. A suitable endowed infirmary is maintained in charge of a nurse matron. Students pay $1.50 a day for ordinary care and employ their own physician and special nursing. There is no organized student health service, and Dr. W. G. Anderson as gymnasium director has been able to do but little in the way of medical examination and instruction in hygiene. That an organized service could do a splendid work at Yale is the conclusion from my recent visit there.

Stanford

The work here has no organization as a definite service. The provision for the student health is supervised in general by a committee of the faculty. This committee is responsible to the president for the public health of the campus. They inspect rooming-houses enforce vaccination, and do some detailed work through the medical advisers who are directors of the gymnasia.

The medical advisers, one woman and one man, act in an advisory capacity in connection with their work in the gymnasia. They do no treatment, but examine entrants in relation to their gymnasium work. Bed patients are provided for by an organization of students known as a hospital guild. This is supervised by a faculty committee, and membership is compulsory for each student at $4 per year. This entitles the student to ordinary hospital care in a local hospital, except for contagious cases, which are provided for otherwise by the guild. Medical care, private rooms and special nurses are not furnished the patient.

Chicago

During 1911 a committee of the faculty of the University of Chicago was appointed to investigate student health problems. A thorough study was made of their own situation as well as systems then in operation at other schools.

Their report emphasized the obligation of a university in the provision for good health among its students. The sanitary condition of their university was pointed out; the general policies and methods of other institutions were shown. The recommendations of this committee were to the effect that there was need for an organized service to coordinate the activities of the various departments of the university whose work touched on sanitation. They recommended the maintenance of an infirmary for students; that general instruction by lectures be developed by the health officer for new students and that such entrants be given a medical examination on matriculation. They asked that consultation hours be maintained for sick students and that vaccination be enforced.

A recent report is to the effect that the university has not undertaken the care for sick students since October, 1912, up to which time there had been a university physician. A committee of the faculty supervises sanitation and the gymnasium directors do some medical work among the students incidentally. Freshmen are examined at the gymnasia and are required to attend lectures on hygiene during the first quarter. The policy seems to be not to assume responsibility in caring for sick students.

Williams

A twenty-four-bed infirmary is maintained for students, faculty, and their families at a rate of $1.50 per day for the patient.

The staff is composed of three local physicians, one or whom, Dr. F. H. Howard, delivers compulsory lectures on hygiene and examines entrants. Other physicians care for infirmary patients at request of parents. There is no general fee and no dispensary work is done.

Massachusetts Institute of Technology

At this school the 1,700 students pay no fee. They may consult a college physician during certain hours. The medical adviser delivers lectures to first year students.

Pennsylvania

The University of Pennsylvania has no organized health service. The need of it there is felt by those most in touch with student health. The ample facilities at the university hospital on the campus have supplied this want with certain satisfaction. The exclusive ward for students makes a suitable arrangement for cases requiring bed care. The patient pays a nominal fee for ordinary care. The medical attention is supplied by the hospital staff.

Haverford College

For a small school the service is especially commendable. The students contributed a sum of money and a beautiful infirmary building, well equipped, has been established by added endowment. Dr. J. A. Babbit is teacher of biology, director of the gymnasium, and college physician. The cooperation of these departments is a special feature of this excellent service.

Culver Military Academy

As an instance of the provision made in boys' preparatory schools, Culver may be cited. An organized service has been working there since 1908. There are about four hundred and fifty students during the regular winter term. The medical staff consists of one physician and two nurses devoting full time. The average of dispensary calls is about twenty daily. Room visits are made as needed.

A seventeen-room infirmary is maintained. It is in charge of the academy physician, who asks outside consultation as required. Two hundred and fifty bed patients were treated during the last session. Frequent examination of all students with weekly lectures in general hygiene are required. General supervision and remedial gymnasium work are emphasized features. Dr. C. E. Reed is physician in charge.

Vassar

For about twenty years this school has made provision for student health. About one thousand students are cared for. Three women physicians, headed by Dr. Thelberg, are employed in the service, and they do some other instruction work in the college.

A good dispensary is maintained and detailed treatment is given. The thirty-room infirmary where bed patients pay $1.50 a day, is well equipped. Careful examinations are required on entrance and attendance on lectures is compulsory.

Wellesley

This school has a plan very much as that described for Vassar. Each of the thirteen hundred students pays a $5 annual fee. For this they receive dispensary privileges, supervision, and two weeks' care in a well-equipped infirmary. Dr. Katherine Raymond and two nurses are employed. Local physicians are called at request of the patient. The inspection of entrants is especially complete.

Smith

Until the last year the service was much as described for Vassar and Wellesley. Since that time the policy has been changed. Hours for advisory consultation are maintained and cases requiring treatment are referred to local physicians. The local physicians aid by making careful reports to the college physician, Dr. Florence Gilman, also director of the gymnasium, who has large authority in handling medical affairs at the school.

The infirmary is inadequate and inferior, although a suitable rest home is maintained in addition. The generous inspection of the school and the examination of entrants is well maintained. Lectures are provided for instruction in hygiene. There are about fifteen hundred students.

STATE UNIVERSITIES

California

As typical of the progressive element in western institutions the university of California has probably developed the best service. It has been organized since 1906. Dr. G. F. Reinhardt, professor of hygiene in the university, heads the staff and does the surgery in addition to the administrative work. Two men care for the daily clinics and house patients. One man for eye, ear, nose, and throat trouble is kept very busy during part of each day. Another man does epidemiologic work, and three women do the clinic and house work for the women students. One of the women does a large amount of orthopedic work and one of them has charge of anesthesia and the laboratories. Each of the eight physicians works with the service about four hours daily. Some of them are connected with the medical teaching staff of the university.

There are over five thousand students who pay $6 each annually for medical service. Operations and special nursing are not covered by this sum. The average daily dispensary patients number about one hundred. Calls are never made in the rooms, as bed patients are sent to the infirmary, which is exclusively for students and has forty beds. Five hundred and eighty bed patients were treated during the last year. Local physicians are called as consultants only.

"Applicants must appear before the university medical examiners and pass a satisfactory examination to the end that the health of the university community may be safeguarded." During two years seven were refused admittance to the university by the service. Of these three died later of tuberculosis and one is in an institution for the insane. Weekly two-hour lectures on hygiene are required of freshmen during the first term.

In a report Dr. Reinhardt points out that through the service the students receive valuable education from experience with economical and efficient organized medical aid; that similar statistics and observations can be made in no other way; and that such service instils democracy. The published reports of this service with reference to the diseases of young adults are elaborate and instructive.

Michigan

Out of general demand from the campus the organization of a service was undertaken in October, 1913. It was organized to undertake both preventive work and instruction, and the care of students when ill.

Administrative officers and deans serve with the staff as directors of the service. Dr. H. H. Cummings heads a staff of four full-time physicians, including Dr. Elsie Pratt, whose duty is with the women. A pharmacist dispenses drugs without added expense to the students.

A building on the campus is equipped for examinations and office treatments. These have averaged about sixty daily throughout the college year. The university hospital provides excellent consultation and care at small expense to bed patients able to pay.

Over five thousand students paid a compulsory fee of $2 each. For sick call at the room the patient pays to the service fund $1 for day and $2 for night call. Summer students pay a general fee of 50 cents.

Next year the college year fee is to be $4. This will enable the service to send any student into hospital care for sixty days' limit without added expense to the patient. The contemplated examination of entrants with early and vigorous isolation of infectious cases should do much for the protection of the student group. Compulsory lectures on hygiene for the freshmen would further assist. It is planned to enrol members of the different house groups as health service representatives. These students will be instructed so that they may be of value in preserving the good health of their several houses.

The health of students at Michigan is generally good; in the last few years, however, there has been an apparent epidemic of acute pharyngitis.

There has been no expressed opposition to the service. Student sentiment is eminently satisfactory. Students have been surprised that in the past they did without such a service, where now in need they come for advice and treatment.

Iowa State

Since 1886, a service has been at Ames. Dr. C. G. Tilden is the only staff physician.

Twenty-eight hundred students pay an annual fee of $4 each. Daily calls average one hundred. Calls at rooms cost extra. Lectures and physical examinations are given in connection with gymnasium work only.

The infirmary has thirty beds and cared for 370 patients last year. Infirmary patients pay $3 weekly for three weeks and $7 thereafter. Local physicians treat infirmary patients at the discretion of the college physician.

Wisconsin

Since 1910 an unusually good service has been operated at Madison. Without special fees from the students the university has taken hold of many problems concerning student health and general medical instruction. Broad economy rather than medical philanthropy is given as a policy in their service.

The staff has six full-time physicians intimately related to the medical faculty. The duties of these men embrace teaching, research, and attention to the health of the individual student.

An ample infirmary has not been developed, although two hundred and fifty bed patients were provided for in a general hospital. This was done at nominal cost to those able to pay. In the dispensary, detailed treatment was given to about one hundred and twenty students daily during the last school year. Calls at sickrooms have averaged about ten daily.

The medical examination of entrants is considered important, but lectures on hygiene are not required. The service supervises sanitation throughout the university as for example, instruction is given to janitors and other university employees.

As emphasized features, Dr. J. S. Evans may be quoted. "There is close relationship between this department and the administrative officers in an attempt to correct errors in our educational practices. The compulsory observation of each student given special privileges because of medical defects. The attempt to prove that the prevention and treatment of disease must go hand in hand in the development of public medicine."

As in other institutions, the local physicians have had trouble in adjusting themselves to the advances of this service. The situation is fast coming to be recognized, however, as the natural course of medicine in its relation to public welfare.

Texas

The University of Texas has had a service since 1910. Twenty-two hundred students pay a fee of $5 a year for this service. A woman physician during two hours daily cares for girls. Dr. Joe Gilbert, in charge of the service, cares for male students in the same way. The number of office patients averages fifteen to forty daily, detailed treatment being given. Calls at the rooms are made without charge for the first three visits.

Hospital arrangement is made with a local hospital for the care of students. The hospital receives $15 per week for each patient and gives in return ordinary care. The patient receives five hospital visits from the university physician without cost. When another physician is called the patient pays for his services, but the hospital care is provided the same. Bed patients average from five to ten daily. Provision is made for compulsory examination of freshmen on entrance and for lectures on hygiene, which must be attended.

Washington

During 1910 a sick benefit service was organized as a result of student agitation. It applies only to those students who come from out of the city and are not under the jurisdiction of some home in Seattle. A fee of $1 is collected by the university for the privileges given. The director of the service is a physician, who cooperates with the faculty committee on hygiene and sanitation. Sick students are first seen by the director without expense for the first visit. If continued medical attention is required, a local physician is called by choice of the patient or in rotation by the director.

Patients requiring hospital attention are sent to local hospital without additional expense to the patient. All entrants must have a medical examination. They also are required to take a course in hygiene consisting of one hour per week throughout the year. It is pointed out that this service does not interfere with the family physician, and that it reduces the student's expense because of the free first call which is all that is required in the majority of cases. It is expected that the fee will be increased soon to $1.50.

Missouri

A service was organized in Columbia, Mo., in 1910. Dr. Moss devotes his entire time to the work and the University Hospital is available. Twenty-five beds were used last year without additional expense to four hundred bed patients. Local physicians may care for hospital cases at the choice of the patient. Office calls average about twenty daily.

There are about three thousand five hundred students and each pays a fee to the service. The examination of entrants and lectures on hygiene are required.

CONCLUSIONS

For the institution which recognizes an obligation in the care of student health, and wishes to handle it certain things are advisable.

1. A definite organization should be able to use and direct effort in any department of university work, to the purpose of the service. The work should be headed by an interested physician who devotes, preferably,

whole time. He should be given large authority in carrying out the policies of the service and additional staff as needed. Having a supervisory board of the faculty is helpful.

2. The needed equipment depends on that available in other departments of the university. If the policy of detailed treatment is chosen, which seems the most practical, a definite headquarters must be provided with ample room sufficiently convenient that students may call without loss of time. Good office facilities and a laboratory are needed for efficient work.

Provision for bed patients should especially include care for contagious cases. This should be so provided that there need be no financial hesitation about ordering any suspicious case into isolation.

3. The service expense should be borne largely by the student through general tax. Money for this purpose is economically spent by the institution. The use of staff members on the teaching faculty provides for part of their salaries.

4. The work of instruction, inspection, and supervision is to be emphasized. The effect of instruction in matters of hygiene and sanitation has an unlimited scope as directed to future teachers and leaders. If this provision for the care of health impresses students favorably, there should be demand for similar service outside the university. The relation of such services to the medical profession should be early established.

The health of a school will depend in part on the health of those admitted. It is certain that schools should be protected from a number of applicants each year, and that a good medical examination would avoid some failures in a college career.

THE THERAPEUTIC EFFECT OF IODIN *

JAMES W. JOBLING, M.D.
AND
WILLIAM PETERSEN, M.D.
NASHVILLE, TENN.

Iodin and the iodids, either in inorganic form or as organic compounds, have been successfully used for many years in the therapy of various disease conditions, without definite knowledge as to their mode of action in the body.

The beneficial results obtained, more especially the effects in causing absorption of necrotic material, such as is found in gummata, have been variously ascribed to the influence on the general metabolism of the body; to the lowering of blood-pressure; to changes in the viscosity of the blood; to a lymphocytosis; to increased lymphatic activity and to the oxidizing properties of free iodin. As is so frequently the case, the very multiplicity of these views indicates that probably none is satisfactory; indeed, practically all the theories advanced have been seriously questioned.

Much work has been done on the absorption, distribution and excretion of iodin. (Winternitz, Wells, Loeb, McLean.) The older view that iodin combines with the proteins of the body has been disproved by McLean, who found that in experimental animals the lipoid fraction of the tissue contained 32 per cent. and the water soluble fraction 67 per cent. of the iodin absorbed. The extracted protein contained no iodin.

In a series of papers recently published we have demonstrated that the lipoids containing unsaturated carbon atoms are antitryptic when in colloidal solution; that tubercle bacilli and tuberculous caseous material contain such lipoids, the resistance of caseous material to solution and absorption being due to the presence of these compounds, the inhibitory effect of which is overcome when the caseous material is extracted with lipoid solvents, or when the unsaturated bonds are oxidized or satisfied with iodin.

We have furthermore shown that the antitryptic activity of the serum is due to similar lipoids which can be extracted with lipoid solvents (chloroform, ether, etc.). We have observed that iodin and the iodids when incubated with serum, markedly lowered the antiferment property. Serum from which the antiferment has been extracted becomes toxic because of autolysis (serotoxin), a similar process (absorption of the antiferment by agar, kaolin, bacteria, etc.) being the basis of the toxicity of the so-called anaphylatoxin.

These studies suggested the possibility that the action of iodin in the body may be due to a combination with the fatty acid, the saturation of the unsaturated valences causing a corresponding neutralization of the antiferment activity of these lipoids. This lowering of the antiferment index of the blood and tissues in general would permit the removal of necrotic tissue by autolysis. In view of the work of McLean showing that a large amount of the iodin is actually combined with lipoids after absorption, such an explanation might seem rational.

Drs. Fordyce, McMurty and Sharpe of the Vanderbilt Dermatological Clinic, Columbia University, have kindly placed at our disposal a series of cases in which we were able to determine the antiferment index of the blood at various times, both before and during the course of iodid therapy. In these thirteen cases, eleven of which were specific, we have observed a progressive lowering of the antiferment index of the serum, the effect being greatest when the limit of tolerance was reached—from 100 to 150 drops per day of a saturated solution of potassium iodid. The number of cases studied is not large, but the results were sufficiently uniform to show that the iodids so administered to human beings cause a considerable reduction in the antiferment activity of the blood, the net result being of course an increase in the proteolytic activity of the blood and tissues.

In those patients in whom toxic symptoms were noted (gastric disturbance, rash, etc.) the antiferment index, which had been lowered, was increased to the original strength, this being similar to the effect observed following many other intoxications—anaphylaxis, serotoxin, burns, protein poisoning; such a toxic rise being most probably due to a mobilization of lipoids from cells, will, of course, defeat the object for which the iodids are given.

TUBERCULOSIS

The impression is quite general among clinicians that iodids are harmful in tuberculosis, as they promote the spread of the infection by causing a softening of the tubercles and also interfere with connective tissue formation. Whether or not caseous tissues take up iodin from the circulation other than in a

---

* From the Department of Pathology, Vanderbilt Medical School, Nashville, Tenn.

* Complete protocols and references to the literature will appear in a more detailed report in *The Archives of Internal Medicine.*

purely physical manner, is an open question. (Loeb, Wells, Lewis). Boudreau believes that iodin is a specific agent in the treatment of tuberculosis and reports favorable results.

In our work on the antiferments contained in tubercle bacilli and in tuberculous caseous material, we found that the enzyme-inhibiting action was due to the unsaturated fatty acid radicals of the lipoids. At first we believed that this action was due entirely to the soaps of the unsaturated fatty acids, but subsequent work showed that a large portion of the enzyme-inhibiting agents could be removed by extracting with chloroform. The substances contained in the chloroform extracts are not active as anti-enzymes when suspended in salt solution, as they are insoluble; but the sodium soaps prepared from these acids are active, and we found that their activity was in proportion to the degree of their unsaturation, but that this action was lost if the acids were first saturated with iodin. These experiments were repeated with the chloroform extracts of tuberculous caseous material and with unextracted caseous material, with the result that the soaps prepared from the chloroform extracts became inactive, and the caseous matter which, previous to treatment with iodin, had not been acted on by trypsin, was now readily attacked. The loss of anti-enzyme action cannot be attributed to any activating influence on trypsin, as iodin inhibits the action of this ferment.

Thus we have definite evidence of the action of the iodids on tuberculous tissue, and the explanation of the well known clinical observation that iodids cause tubercle bacilli to appear in the sputum of patients with pulmonary tuberculosis, though they were previously absent. When iodids are taken into the tissues a portion of the iodin is liberated and combines with the unsaturated carbon atoms of the fatty acids. As soon as this occurs in necrotic tissue to a degree sufficient to lower or remove the antiferment action, autolysis ensues, as in most instances ferments are present. That the inorganic iodids diffuse readily throughout caseous matter and are thus in a position to furnish the iodin, has been shown by Loeb and Michaud, and Wells and Hedenberg.

SYPHILIS

Clinical experience teaches us that in the tertiary stage of syphilis iodin is almost a specific in bringing about the amelioration of symptoms, and the disappearance of lesions, and yet little is known concerning the means by which these results are obtained.

Authorities on this subject are unanimous in the belief that iodids are not curative in the sense that they prevent the return of the lesions; this can be accomplished only when the iodids are combined with some other form of treatment. Tomasczewski found that the administration of iodin does not prevent the development of experimental syphilis in monkeys and rabbits; neither has it a curative action; but iodized animals recovered quickly when given mercury. That iodin does penetrate into syphilitic tissues has been shown by O. Loeb.

As experimental work and clinical observations have demonstrated that the iodids do not destroy the infecting organism, we must assume that the results obtained are due to the power the iodids possess of causing resolution of the lesions present. That this actually occurs will be attested to by every clinician of experience.

Owing to its scarcity we have not been able to examine material from gummata, and so we are unable to state positively that the anti-enzymes present are similar to those found in tuberculous caseous matter, but it is probable that the same agents are active here as in those anemic infarcts in which autolysis does not occur. If this assumption is correct, it is not difficult to explain why large gummata rapidly disappear when the patient is brought under the influence of iodids. It is due to the fact that the unsaturated fatty acid radicals which inhibit autolysis, have become saturated with iodin. As soon as this occurs, the ferments which are present, or which may be brought in, become active, autolysis takes place, and the necrotic tissue is absorbed. Here, also, the local action of the ferments is made less difficult by the reduction of the anti-enzyme in the circulating blood. It must be borne in mind that the iodids are not as effective in the earlier stages of syphilis when necrosis of tissue is not so evident.

If the above interpretation of the action of iodin is correct, it gives the clinician a rational idea of what he is accomplishing when he gives iodids to a patient in the tertiary stage of syphilis. According to this view, iodin neutralizes the action of the agents which prevent resolution and absorption of the diseased or necrotic tissue, and at the same time lays bare to the action of the real germicidal agent the infecting organism which previously had been protected by the necrotic tissue. With the exposure of the infecting organism, such agents as mercury and salvarsan would be much more effective.

CONTRIBUTION TO THE STUDY OF THE VALUE OF QUININIZATION IN THE ERADICATION OF MALARIA

A. J. ORENSTEIN, M.D.
Superintendent of Sanitation, Rand Mines, Limited
JOHANNESBURG, TRANSVAAL, SOUTH AFRICA

My excuse for adding this paper to the already rather voluminous literature on malaria prevention is that it embodies the result of a unique experience, and one which, I feel, should be recorded.

My principal duty in Daressalam was to institute a campaign against malaria, and although my training has been almost entirely along the lines of attack on the anophelines (in Panama), I was under the impression, formed from the perusal of Claus Schilling's article in Ross' "Prevention of Malaria," that the method of Koch, introduced in Daressalam by Ollwig[1] in 1901-1903, has been successful in so far as it has at least considerably reduced the incidence of malaria.

The results of my study of the conditions in Daressalam have been embodied in a report to the imperial governor of German East Africa, but I was impelled to the writing of this paper by the appearance of Henson's article,[2] and the wish to show, by citing the results achieved by such an attempt, the difficulties in the way of reducing malaria to any reasonable extent by systematic quininization in a community of considerable size. Let me say here that I do not wish to be understood to the effect that the attempt should never be made, that this method of prophylaxis stands condemned as useless. It may have a cerain degree of usefulness, but it is, much to my regret, a very insignificant degree when applied to a permanent community of considerable size in a country where anophelines capable of transmitting malaria abound, and where, in addition, changes of population due to immigration serve to introduce more or less continuously gamete carriers.

---

[1] Ollwig: Die Bekämpfung der Malaria, Ztschr. f. Hyg. u. Infektionskrankh., 1903, xliii.

[2] Henson, Graham E.: Man, the Principal Etiologic Factor in the Perpetuation of Malaria, with Special Reference to the Endemicity of the Disease in the Temperate Zone, THE JOURNAL A. M. A., May 2, 1914, p. 1374.

Daressalam is a town of about 23,000 inhabitants, of whom approximately 1,000 are whites and Goanese, and the remainder mostly Swaheli of Negro-Arabic descent. The town is divided into practically two settlements: the white quarter, situated along the beach, and the native quarter, farther inland. To the east of the town is the Indian Ocean, to the south the harbor and Geresani Creek, a rivulet divided from the harbor by a dam and forming behind it a swamp about $^8/_{10}$ of a square mile in area. This swamp and the creek itself are prolific anopheline producers. The distance from the dam to the center of the town is about a mile.

In the very center of the native quarter are two large pools, one permanent, and the other containing water only during the rainy seasons, of which there are two annually. Both of these breed anophelines. One of these, to which reference will be made later, known as Karavanserai Pond, has recently been cleaned out and the banks trimmed, and it is being periodically treated with a phenol preparation. While thus treated it has remained free from mosquito life.

Then there was also, until very recently, a swamp, heavily infested with anophelines, about a mile long and 50 yards wide, in a valley on the very edge of the native town, with a branch toward a small European suburb. This swamp drains into the Msimbasi rivulet, the banks of which are also breeding grounds for anophelines during the dry seasons, and which winds its way in close proximity to the native town.

Across the narrow inlet to the harbor, and less than a mile away from the town, are a number of mosquito-breeding pools and swamps.

The town has no public water supply, nor any sewerage system.

There are about 200 wells, most of these badly covered and containing anopheles larvae. The European houses mostly have pits, into which the sewage is water borne. For this service water tanks are installed under the roofs, few of which are free from mosquito larvae. In addition, anopheles larvae were found in roof gutters.

In the rainy season pools of water, which stand for weeks in many instances, form in numberless places on streets, lots and in yards, and very soon mosquitoes breed in these.

Ollwig arrived in Daressalam apparently firmly believing in the soundness of Koch's theory[3] that malaria can be eradicated by attacking the parasite within the human host. He also believed, as he states in his articles in the *Zeitschrift für Hygiene und Infectionskrankheiten* and in private letters to Koch, since published, that a campaign against the mosquito in Daressalam was certain to be fruitless. He lays particular stress on the opinion of an unnamed "expert engineer" that the most prolific anopheles-producing area, the swamp at the mouth of Geresani Creek, is undrainable. Let me here remark, by the way, that a survey showed this swamp to be drainable, and that when I left Daressalam the creek and swamp were practically free from mosquito larvae, as a result of clearing the creek and ditching, which was done only on a small experimental scale because of the absence of funds.

Ollwig therefore instituted his campaign on the lines of an attack on the parasite in the human host, and this campaign is, so far as my information goes, still continued; at least, it was being continued when I left Daressalam in March of the present year.

The campaign is carried out on the following lines: Blood specimens are taken from all natives employed or living within the European quarter and in the immediately adjacent area. "Thick" smears are made, stained with Giemsa stain and examined. All those whose blood shows the presence of malaria parasites are given 1 gm. of quinin daily for six days and 1 gm. twice a week for ten weeks. The quinin is given in solution and is taken in the presence of a trained nurse.

The accompanying tables show the results accomplished. They have been compiled by Dr. Manteufel of the Daressalam Research Institute. The figures are from carefully kept records, and are not subject to the usual errors of such compilations.

TABLE 1.—MALARIA AND HEMOGLOBINURIC FEVER—MORBIDITY AND MORTALITY AMONG EUROPEANS IN DARESSALAM

		Morbidity		Mortality	
Fiscal Year	Population	Cases	Percentage of Population	Cases	Percentage of Population
1903-04......	377	168	44.5	0	0
1904-05......	350	141	37.1	3	0.8
1905-06......	657	355	54.0	4	0.6
1906-07......	851	287	33.7	6	0.7
1907-08......	827	268	29.8	6	0.7
1908-09......	743	342	48.0	3	0.4
1909-10......	750	506	67.5	5	0.7
1910-11......	930	460	49.5	10	1.1
1911-12......	1,024	667	65.2	11	1.1

TABLE 2.—INCIDENCE OF MALARIA INFECTION AMONG THE NATIVE POPULATION OF DARESSALAM BASED ON BLOOD EXAMINATION

	Adults		Children	
Fiscal Year	Examined	Infected Per cent.	Examined	Infected Per cent.
1904-05.......	8,000	10	None examined	
1905-06.......	No examinations made			
1906-07.......	14,752	7.5	3,234	18.9
1907-08.......	15,263	15	4,352	27.0
1908-09.......	28,267	14	3,747	33.4
1909-10.......	17,889	21	5,563	29.4
1910-11.......	15,960	18	4,136	27.7
1911-12.......	24,917	17	4,800	25.1
1912-13.......	19,782	20	3,308	32.0

Manteufel in his paper,[4] from which the tables are abstracted, says:

> When the above-mentioned expedition [Ollwig's] commenced its work in Daressalam, the Europeans were already in the habit of using mosquito bars on beds. However, the use of mosquito gauze for the protection of dwellings, and the taking of quinin prophylactically, as well as measures against mosquito pest, were only gradually introduced during the following years. In considering the influence of Koch's method upon the malarial morbidity of the European population, the above-mentioned factors must naturally be taken into consideration.

Now, the objection may be raised that the quininization was extended to only a portion of the population. The answer to this is that it represents a comparatively steady part of the population: house servants and artisans, who are less subject to migration than the traders, porters and agricultural laborers, who make up the remainder of the population of Daressalam. It follows that the results obtained among these people would be rather better than the average.

---

[3] Koch, R.: Die Bekämpfung der Malaria, Ztschr. f. Hyg. u. Infektionskrankh., 1903, xliii.

[4] Manteufel: 12 Jahre Malariabekämpfung, etc., Ztschr. f. Hyg. u. Infektionskrankh., 1913, lxxvi.

It is recognized, of course, that by leaving the bulk of the population untreated, the chances for infecting the treated portion remain very good.

An experiment was therefore instituted by me to determine the effect of treating all the inmates of a closed community.

For this experiment the negro pupils of the Daressalam Trade School, who live in dormitories and do not come into contact with the outside population, were selected. The school is in the European quarter. Five days after the school was opened, April 5, 1913, blood specimens from all the pupils were examined. One hundred and thirty-one of these were natives of Daressalam; of these sixty-six, or 46.8 per cent., had malaria parasites. One hundred and twelve came from the country; of these fifty-two, or 45.5 per cent., were infected.

All those found to be infected were put on the routine treatment with quinin, and this treatment was continued until Oct. 29, 1914. November 11, the blood of all was examined; 26.4 per cent. were infected with malaria.

The school was closed for the Christmas holidays. Jan. 15, 1914, again five days after the school was opened, 254 pupils were present. Of the 152 who spent the holidays in Daressalam, fifty-one, or 37.4 per cent., were infected with malaria. Of the 102 who spent the vacation in the country, thirty-seven, or 36.2 per cent., were infected with malaria.

A parallel inquiry was carried out. Oct. 3, 1913, 100 adults and fifty children living in the vicinity of the mosquito-breeding pond mentioned before, Karavanserai Pond, had their blood examined by the same person who examined the blood of the schoolchildren, and who had no idea whatsoever of the purpose or nature of the experiment. None of those examined had ever taken quinin prophylactically, and the subjects were taken at random from the huts in the vicinity. Of the adults thirty-two harbored the parasites of malaria (32 per cent.); of the children twenty-six were infected (52 per cent.).

The pond was cleared of vegetation, the banks trimmed, and the water near the banks treated every ten days with a phenol preparation. The work of clearing was completed in November, 1913. Feb. 26, 1914, again 100 adults and 50 children were taken at random from the population residing in the vicinity of the pond. None of these had had quinin. The blood smears were examined by the person who made the first examination. Of the adults fourteen, or 14 per cent., were infected with malaria; of the children sixteen, or 32 per cent., a decrease of 18 and 20 per cent., respectively.

Among those treated with quinin according to the Koch-Ollwig method, the decrease in a community under ideal control was 13.9 per cent.

It is to be noted that the climatic conditions remained practically constant during the period covered by the inquiry. It is also to be noted that the control of the one breeding area did not by any means eliminate anophelines from the vincinity from which the subjects were drawn. The number of anophelines was reduced, however, to quite a marked extent in such areas.

I want to draw attention to one other factor in connection with the experience in Daressalam with the Koch-Ollwig method.

In the past two years the energetic medical adviser to the governor, Generaloberarzt Dr. Meixner, has had quite a number of measures introduced, all of which tended to decrease the number of anophelines in Daressalam. Unfortunately, conditions are such that Dr. Meixner and his associates are not in a position to carry into effect all the measures against malaria that they rightly consider necessary. The power of the able and zealous officers is greatly curtailed and hampered in East Africa, and their efforts are rendered almost sterile by passive and active resistance, lack of funds and "red tape" in volumes beyond the comprehension, I fear, of the average American.

A COLLOIDAL COMPOUND OF STRYCHNIN AND ITS PHARMACOLOGY *

HUGH McGUIGAN, M.D.
CHICAGO

The migration of drugs in the body, and consequently their action, is largely dependent on their diffusibility through colloidal membranes and their interaction with colloidal bodies. Since I wish to present the action of a colloidal compound of strychnin, it may be of interest at first to give a brief summary of the properties of colloids.[1]

In 1861, Graham found that not all substances acted in the same way when their solutions were separated from water by a parchment membrane. Crystalline substances like sodium chlorid, potassium iodid, sugar and the like passed through, while substances like gums, starches and proteins did not. Those that passed through he called crystalloids, those that did not, colloids.

This difference in diffusibility is perhaps the most striking distinction between the two classes of substances; it is not, however, the only one nor is it an absolute one, since all these bodies diffuse to some extent, at least on longer standing.

THE NATURE OF THE COLLOIDAL SOLUTION

Various facts indicate that colloidal solutions are not true solutions but more of the nature of suspensions of fine minute particles of one form of matter in another. The solid particles are separated so that they do not come in contact with each other and are known as the disperse phase. The liquid molecules touch each other and are for this reason called the continuous phase of the colloid. All colloids are made up of these two phases—disperse and continuous. A difference in the size of the particles causes a difference in the refraction of light and consequently a difference in the appearance or color of the solutions. In the crystalline state it is well known that copper sulphate is blue, but if this be finely powdered it is white. Similarly the red oxid of mercury becomes yellow when more finely divided. For the same reason a colloidal solution of gold may be pink, red or purple in water and blue in organic solvents. The ultramicroscope also shows that many colloidal solutions contain fine particles.

---

* From the Laboratory of Pharmacology, Northwestern University Medical School.

[1] This summary is taken mainly from an Introduction to the Chemistry of Plant Products by Haas and Hill, Longmans, Green & Co., London and New York, 1913, p. 273.

The fact that colloids contain these particles suggested a reason for their not diffusing through a membrane, and to explain this the mechanical or filtration theory states that colloids do not pass through simply because the particles are too large. There are some known facts, however, such as the passage through one kind of membrane of a colloid which will not dialyse through another of different composition, which prevent the acceptance of this theory as the only process involved in dialysis. For this reason some chemists advance a chemical theory which holds that the passage of a substance through a membrane is due to the latter playing an active part in the process. Kahlenberg asserts that the substance which passes through a membrane is soluble in the membrane. This theory might be also used to explain the selective affinity of tissues for drugs and the ability of tissues to break up such weak colloidal compounds as strychnin with kaolin.

The nature of the solvent is also important. A substance may be crystalline in one medium and colloidal in another. Gallic acid in water acts like a colloid, while in glacial acetic acid it is crystalline. While gold may be pink, red or purple in water, and blue in organic solvents, it is ruby red in glass. Sodium chlorid is white, but blue rock salt is considered a colloidal solution of sodium in crystalline sodium chlorid. Sodium chlorid also may be obtained in colloidal form in benzene, while in water it is decidedly crystalline. Soap is colloidal in water but not in alcohol.

GEL FORMATION

Colloidal solutions readily undergo change, and unless conditions exist either for their preservation or renewal they soon deteriorate. The emulsions of the pharmacist "crack" and precipitate. The precipitation form of a colloid is called gel, the dissolved form, sol. Since both dissolved and precipitated forms of colloid may exist for many solvents, the terms "hydrosol," "hydrogel," "alcosol" and "alcogel," etc., are used to indicate the kind of solvent—water, alcohol, etc. If the precipitate or gel be one that cannot go into solution again, the action is said to be irreversible. If, however, the change is only temporary and through change of temperature or the like it again goes into solution, it is said to be reversible.

TYPES OF IRREVERSIBLE AND REVERSIBLE CHANGES OF COLLOIDS

1. Spontaneous precipitation: Some colloids like silicic acid or pharmaceutical emulsions, after keeping precipitate spontaneously.

2. Gel formation due to altered concentration: An ether solution of collodion on evaporation will form a gel. Fruit juices and agar gel on evaporation due to the presence of a colloidal carbohydrate-pectin. Gelatin, a protein substance prepared from tendon or bone, gelatinizes on evaporation of its solution. All of these changes are reversible with heat.

3. Coagulation by heat. This change is well known in urinary analysis in the heat test for albumin; also well known in the cooking of eggs. The action is irreversible.

4. Coagulation by enzymes. The well-known coagulation of the emulsion milk by rennet and by various plant enzymes is an irreversible reaction. The suspensoid colloids resemble closely the enzyme, catalase, in many of their reactions.

5. Precipitation by electrolytes: The colloids of the blood or urine may be salted out by the addition of varying amounts of different salts; usually a large amount is required. Other colloids, especially suspensoids, may be precipitated by mere traces of an electrolyte. Thus colloidal iron is precipitated by extremely minute amounts while emulsoids, like milk or blood, require large amounts.

6. Precipitation by other colloids of opposite sign: Colloids are known to carry electric charges, and it is this that enables them to remain in solution. When neutral they are precipitated. The proteins of the blood are amphoteric, that is, they carry charges of either sign. Colloidal kaolin is negatively charged and colloidal ferric hydrate positively. The last two will mutually precipitate each other. One of the best methods of removing the proteins of the blood for the determination of the blood-sugar is to mix the blood-serum or laked blood with colloidal iron, in slight excess. The blood thus treated takes on the character of the added colloid but still remains in solution. On the addition of an electrolyte bearing an opposite charge such as sodium sulphate or magnesium sulphate, the positive charge on the iron is neutralized and in precipitation it carries down the protein with it. For a similar reason ferric salts are used in the purification of sewage water. The negatively charged particles of the sewage are precipitated by the positively charged ferric hydroxid hydrosol. It has also been suggested that the neutralization of toxin with antitoxin, and the phenomenon of bacterial agglutination, may be regarded as the mutual precipitation of two colloids.

THE PROTECTIVE POWER OF COLLOIDS

Many organic substances such as gelatin and pectin bodies, when added to inorganic colloidal solutions, protect these from precipitation by electrolytes. As an explanation it has been suggested that the suspensoid becomes covered with a layer of the gelatin or pectin body and in a measure insulated with a coating of the added body whose character it takes on. Suspensoids so protected or insulated may be evaporated to dryness and again redissolved. This property of increased stability is valuable in the preparation of some of the colloidal solutions of silver and mercury used in medicine.

In like manner colloids protect sensory nerves from the action of acids, bitters, corrosives, etc. Sugar dissolved in mucilage tastes less sweet than in water, and acids in colloidal mixtures are less appreciated, as is observed in many fruits. The raspberry contains more acid and less sugar than the currant, but in the former the acid taste is concealed by the presence of large quantities of colloids so that the raspberry is regarded as a sweet fruit and the currant as an acid one. For the same reason ice cream does not taste so cold as frozen water (Cushny). One of the most common measures in the treatment of corrosive poisoning is the administration of colloids in the form of milk or eggs, because of this protective property. Charcoal, Fuller's earth or Lloyd's reagent would also lessen the rapidity of absorption.

CLASSIFICATION OF COLLOIDS

Two classes are recognized—suspensoids and emulsoids. This classification is based largely on the properties and composition of organic and inorganic colloidal solutions. Organic colloids are sticky and viscous. Inorganic colloids are never viscous. This difference is accounted for by assuming that the disperse phase of the suspensoids consist of solid particles in a liquid medium, whereas the disperse phase of the viscous colloids consists of liquid particles suspended in a more dilute solution or liquid medium.

Emulsoids.—Serum may be regarded as a type. The ultramicroscope reveals no distinct particles. Whether this is due to the particles being too small or not having a refractive index sufficiently different from that of the liquid in which they are suspended is not known.

The assumption that emulsoids are made up of one liquid suspended in another would to a certain extent explain their viscosity. The lack of a sharply defined surface of separation would account for their lack of marked electrical properties and their indifference to electrolytes as compared with suspensoids. A relatively great concentration of an electrolyte is required for their precipitation, while a trace precipitates a suspensoid. If a suspensoid be added to serum the latter takes on the property of the suspensoid and is then readily precipitated or dragged down with the suspensoid on the addition of a trace of an electrolyte.

Suspensoids.—These are perhaps of less importance in medicine and biology than emulsoids, but because our kaolin strychnin compound comes under this head a brief description of their properties is given. The method of their preparation sustains the assumption that they are electrically charged, and the ultramicroscope reveals the presence of solid particles. By analogy some of these properties are thought to apply to the emulsoids.

They may be prepared: (1) by the disintegration of metals by an electric current under water; (2) by the reduction of metallic solutions with reducing agents; (3) by the passing of hydrogen sulphid through arsenious acid, whereby the arsenic trisulphid instead of being precipitated remains in colloidal solution.

It is natural to suppose that in the method of preparation by an electric spark the particles should be electrically charged and that these particles, being charged with the same kind of electricity, repel each other and so keep in solution — or suspension. If electrolytes are added, the charge may be neutralized and the suspensoid precipitated. This explains why suspensoid colloids cannot be kept for any length of time unless carefully freed from electrolytes by dialysis. This property of neutralization of colloids by electrolytes and the neutralization of a positive by a negative colloid may explain the phenomenon of absorption which some colloids exhibit and which concerns us directly in the kaolin strychnin compound.

ABSORPTION

When a solid body is introduced into a solution the dissolved substance tends to accumulate at the point of contact between the solution and the solid. To all such cases of purely surface absorption the term "adsorption" is applied. This property is exhibited by wood charcoal to a large degree, and charcoal has long been used in chemical analysis to clarify solutions and to absorb gases. It has also been used in medicine to absorb gases from the stomach. Other colloids such as fuller's earth and china clay have been similarly used, and it is from fuller's earth that Lloyd's reagent is mainly prepared.

COLLOIDAL STRYCHNIN

The preparation known as Lloyd's reagent was prepared by J. U. Lloyd[2] from fuller's earth. It has the property of completely removing alkaloids from neutral and acid solutions. The reagent is essentially hydrous aluminum silicate. According to Waldbott[3] it has the approximate composition given in Table 1.

TABLE 1.—APPROXIMATE COMPOSITION OF LLOYD'S REAGENT

	Per Cent.
Water	17.41
Silicon dioxid	55.30
Aluminum oxid	9.82
Ferric oxid	14.80
Calcium monoxid	1.58
Carbon dioxid	undetermined

He also found that heating to 130 C. (266 F.) does not destroy its activity, but red heat renders it inert. Other colloidal materials, among which are colloidal arsenious sulphid and colloidal silicic acid, plainly precipitate quinin sulphate.

The use of this reagent for the separation of alkaloids has been investigated somewhat in detail by Gordin and Kaplan.[4] Because of the rather firm combination which the substance forms with alkaloids and the fact that it has been advised as a means of concealing the unpleasant taste of quinin, it was thought advisable to investigate its pharmacologic action. For this purpose Professor Gordin kindly furnished me with a colloidal combination of strychnin with Lloyd's reagent. The strength of the sample was 4 gm. of strychnin sulphate precipitated with 60 gm. of the reagent. The final product when dried weighed 65 gm.

Since the product contains about 6.15 per cent. strychnin sulphate, one is surprised to find that it is rather tasteless, and only after holding it in the mouth for some time does the bitter taste develop. It is this concealment of the bitter taste and its use for this purpose in pharmacy that makes the investigation advisable. As already reported by Dr. Gordin,[4] the colloidal precipitate acts very much like strychnin diluted with an inert substance. In fact, it has the typical colloidal property of delaying and lessening the effect of the strychnin.

In determining this I used frogs of about the same size and compared the action of pure strychnin with the colloidal form. The time of the onset of tetanus was noted in each case, and the amount of pure strychnin corresponding to the colloidal form estimated. This method has a limited application, but it shows beautifully the lessening of the tetanic dose and marked changes in the rate of absorption. The tables are self explanatory. The amount of colloidal strychnin is given in terms of strychnin sulphate, which is 6.15 per cent. of the amount of kaolin precipitate used. Equal volumes of fluid were used in each injection. The injections were made into the anterior lymph sac.

In comparing these two tables we find that where $\frac{1}{50}$ mg. of the pure strychnin produced tetanus in about an hour, the same amount in a colloidal form was without effect and that about four times the amount was required to produce tetanus in this time. The weakening effect is much more marked in the stronger colloidal suspensions. One twenty-fifth mg.

---

[2] Lloyd, J. U.: Chem. Abst., 1913, vii, 683.

[3] Waldbott: Jour. Am. Chem. Soc., 1913, xxxv, 837.

[4] Gordin and Kaplan: Am. Jour. Pharm., 1914, lxxxvi, 461; Jour. Am. Pharm. Assn., 1914, iii, 627.

will produce tetanus in about the same time as 3.6 mg. or about ninety times as much of the colloidal compound. It is quite apparent, therefore, that this method will not give us the relative strengths of the preparations. It does show, however, the retarding action of the colloid. This difference in the apparent strength of colloids on dilution is perhaps not given the weight it deserves in the biologic standardization of drugs.

TABLE 2.—EXPERIMENTS WITH PURE STRYCHNIN SULPHATE

Weight of Frog, Gm.	Amount of Strychnin, Mg.	Time of Onset of Tetanus, Minutes
27	1/5	3.5
29	1/5	2.0
25	1/10	5.0
21	1/10	4.5
30	1/10	5.5
24	1/25	35.0
24	1/25	35.0
25	1/25	23
27	1/25	40
22	1/25	23
22	1/25	18
23	1/25	39
22	1/50	62
22	1/50	73
21	1/50	75

TABLE 3.—COLLOIDAL STRYCHNIN

Weight of Frog, Gm.	Strychnin, Mg.	Time of Onset of Tetanus
23	1/25	No Tetanus
18	1/25	No Tetanus
17	1/25	No Tetanus
18	1/25	No Tetanus
18	1/13	76
16	1/13	46
23	1/13	75
21	1/13	13
20	2/13	66
18	2/13	51
19	2/13	43
19	2/13	45
24	2.4	37
24	2.4	28
23 aver. weight of 10	3.6	32
20 aver. weight of 4	4.8	31

The difference between crystalline and colloidal strychnin is undoubtedly due to a retarded absorption. This can be lessened to such an extent that the rate of excretion may be nearly equal the rate of absorption, when no action would be expected. Other colloids have the same effect and it is well known that strychnin in mucilage is not nearly so quickly absorbed through the frog's skin as strychnin in water. O. H. Brown[5] has reported a colloidal albumin combination of strychnin whose properties are similar to the compound which I have described.

All of the animals that received the larger doses of the colloidal preparation died. Those that received the pure strychnin in smaller doses, but which produced tetanus in the same time as the larger colloidal doses, recovered. The colloidal combination, therefore, apparently acts mainly by delaying absorption, and if given in larger amounts is only a little less toxic than the pure alkaloid.

When administered by mouth the action is also delayed, but if the amount given contains a fatal dose of strychnin, tetanus is somewhat delayed and it requires a little more to cause death. The main difference is in delayed action due to delayed absorption. Cats and dogs react similarly to frogs. The exact diminution in the toxicity we have not measured, but it is not great.

CONCLUSIONS

The action of strychnin when combined with Lloyd's reagent is retarded. In this respect the reagent modifies the action in a manner similar to other colloids. The combination is broken up in the body and the typical strychnin action exerted. The toxicity of the alkaloid is somewhat lessened owing to delayed absorption, but the main effect is a retarded action.

THE INTRASPINAL TREATMENT OF SYPHILIS OF THE CENTRAL NERVOUS SYSTEM WITH SALVARSANIZED SERUM OF STANDARD STRENGTH

REPORT OF CASES *

HANSON S. OGILVIE, M.D.
Assistant Physician The Neurological Institute
NEW YORK

The purpose of this communication is to describe a method of preparing human serum containing a known quantity of salvarsan and suitable for employment intraspinally in the treatment of syphilis of the central nervous system, and to report a series of fifteen cases treated with such a preparation.

Recently Marinesco and Minea[1] reported having treated twenty patients with serum prepared in a somewhat similar manner, but in which neosalvarsan was used instead of salvarsan. Their work was started about the same time (November, 1913) as that herein reported. Reference will be made later to this article, and to a subsequent one by the same authors.

In support of the rationale of intraspinal treatment there are reasons which readily commend it to those who are familiar with the anatomic and physiologic conditions existing in the central nervous system. While necessarily a delicate procedure, and one that requires the greatest care and thoroughness of technic, the method may be considered free from hazard when the essential precautions are carefully observed. There can be no doubt in the minds of those who have followed the developments of the past few years that, in so-called parasyphilis or metasyphilis, we are dealing with either active syphilitic disease of the central nervous system, or the results of such a process. It is in the former class of cases only that we may hope to achieve success with any form of therapy. The findings of Noguchi and Moore,[2] and subsequently of others, have removed all doubt as to the true etiology and pathology of paresis and tabes.[3] The indications for a rational therapy have been definitely established. We are confronted with the task of dislodging the *Treponema pallidum* from the poorly vascularized regions of the brain and spinal cord. That the perineuronal and perivascular lymph-spaces are in direct communication with, and a part of, the subarachnoid space has been demonstrated. Dandy and Blackfan[4] in their experiments in producing artificial hydrocephalus, have shown that when phenolsulphonephthalein is injected into the subarachnoid space, only faint traces can be demonstrated in the thoracic and right lymphatic ducts even after an interval of two hours, whereas it appears in the blood in three minutes, and at the end of two hours from 35 per cent. to 60 per cent. has been excreted by the kidneys. This experiment indicates that the subarachnoid space and its accessory perineuronal and perivascular lymph trabeculae are not a part of the general lymphatic system of the body. It also shows that there is a free passage of spinal fluid into the blood-stream. The reverse is not true, however, for substances introduced intravenously and intra-arterially do not enter the cerebrospinal fluid. Tilney and Woolsey,[5] in a series of extremely important and interesting studies in vital staining, introduced solutions of trypan blue subcutaneously, intra-arterially, intravenously, and intraspinally. By the first two methods they found that the skin and thoracic and abdominal viscera stained readily; but the central nervous system, on the other hand, remained entirely free from stain. Given intravenously, the stain reached the dura mater and the pia, but did not penetrate into the nerve-tissue. Even after the use of *twice the quantity of the solution and a concentration three times as great* as that used in the first two methods, there was but little evidence that the dye had traveled into the substance of the brain and cord. After an intraspinal injection, however, *using only one-tenth the strength of dye solution* used in the first two experiments, the meninges were not only found to be deeply stained, but the dye had penetrated deeply into the nerve-tissue and through the walls of the veins and capillaries, even reaching the endothelium of the latter. Microscopic examinations of sections showed that the stain had traveled along the trabeculae of the pia.

---

[5] Brown, O. H.: Jour. Biol. Chem., 1906, ii, 149.

* Read before the American Association of Immunologists at Atlantic City, June 22, 1914.

* On account of lack of space this article is abbreviated in THE JOURNAL by omission of some case reports. The complete article appears in the author's reprints.

[1] Marinesco and Minea: Bull. de l'Acad. de méd., 1914, lxviii, 259.

[2] Noguchi and Moore: Jour. Exper. Med., 1913, xvii, 232-238; Moore, J. W: Jour. Nerv. and Ment. Dis., 1913, xl, 172-179.

[3] Noguchi, H.: Jour. Cutan. Dis., 1913, xxi, 543-549.

[4] Dandy, Walter E., and Blackfan, Kenneth D.: An Experimental and Clinical Study of Internal Hydrocephalus, THE JOURNAL A. M. A., Dec. 20, 1913, p. 2216.

These results suggest strongly the necessity for other than intravenous administration of salvarsan if we are to reach the diseased areas in syphilis of the central nervous system, other than gummas and endarteritis. The cells of the choroid plexus are secretory in character. To them is due, in a large part, the elaboration of the spinal fluid, although Dandy and Blackfan have shown that the ventricles of the brain also play a part in the secretion of this fluid. It is well known that only a few substances and these of the most simple character, such as urea and sodium chlorid, normally pass from the blood into the subarachnoid space. The question of the presence of salvarsan in the cerebrospinal fluid after an intravenous treatment is one on which investigators differ. While the majority have obtained entirely negative results, a few claim to have detected small quantities of arsenic. There can be no doubt, however, that the impermeability of the fluid secretory apparatus accounts for the comparative inefficiency of other than subarachnoid administration of curative agents in diseases affecting the meninges and adjacent nerve-tissue. Flexner,[6] in his work in epidemic cerebrospinal meningitis, Lamar,[7] in pneumococcic meningitis, Wollstein,[8] in influenzal meningitis, and more recently Flexner and Amoss,[9] in poliomyelitis, have demonstrated beyond a doubt that diseases of this type cannot be controlled except by subarachnoid therapy. Syphilitic meningo-encephalitis and meningomyelitis differ in no way from other diseases of these parts in so far as the method of treatment to be employed is concerned. While potassium iodid, mercury, and salvarsan intravenously, are of unquestioned benefit in many cases, not infrequently resulting in rapid amelioration of symptoms, they are rarely sufficient to eradicate the biologic evidences of active disease as shown by the findings in the spinal fluid. Until this is accomplished, and permanently so, our therapy is inadequate and an additional means of attack seems therefore very desirable.

We are indebted to Swift and Ellis[10] for the original work in intraspinal treatment of syphilis of the nervous system. Their method was to use the blood removed from a patient one hour after the intravenous administration of salvarsan. At this time the serum possesses the maximum spirocheticidal action and the minimum irritative qualities. The results obtained by Swift and Ellis in the treatment of tabes and cerebrospinal syphilis were extremely good. In this country a number of men, including Fordyce, Ayre, Tilney, Hough, McCaskey, Fry, Myerson, Byrnes, Cotton, Esper, Draper, Cutting and Mack, and Ogilvie, have employed the method in treating paresis as well as tabes and cerebrospinal syphilis. With the exception of Myerson, who discredits the method in both theory and practice, the consentient opinion of these men is that the results so far obtained, in all but the hopelessly irreparable cases, are very encouraging.

Efforts made to introduce solutions of neosalvarsan intraspinally have not met with very encouraging results. Swift and Ellis[11] found that solutions containing from 0.1 to 1.5 mg. produced marked lymphocytosis in the spinal fluid of monkeys, indicating that the drug was intensely irritating to the meninges. In this work they used 40 per cent. serum as a vehicle. Solutions containing 1.0 mg. of salvarsan produced a lymphocytosis of over 1,000 cells per cubic millimeter in every case, while in one monkey 3.2 mg. caused paralysis of the hind legs. Wechselmann[12] found that 0.1 mg. of salvarsan in solution of from 1 : 500 to 1 : 800 produced convulsions and subsequent death in dogs when given intracranially. Less concentrated solutions were better borne. He later[13] reported having treated two paretics and two cases of congenital syphilis intraspinally with doses of neosalvarsan ranging from 0.5 to 3.0 mg. without ill effects. Marinesco[14] reported severe reaction following the use of 5.0 mg. of the drug in a concentration of 1 : 800. Eight out of thirteen patients treated had vesical retention or incontinence. Three had paresis of the lower limbs and one had anesthesia below the site of puncture. Berger,[15] in a series of experiments on twenty-five dogs, found that a solution containing 1.0 mg. produced death when given intracranially. At necropsy even doses of 0.5 mg. had produced severe irritation at the site of the injection. This was evidenced by congestion and infiltration of the surrounding tissue, minute hemorrhages, etc. Only 0.1 mg. in a 1 : 10,000 solution could be given without irritation. Beriel[16] reports the death of three out of four paretics treated intracranially and intraspinally. Two of these received 2.0 mg. of neosalvarsan. One suffered no ill effects after 1.0 mg. and 2.0 mg. and appeared to be somewhat improved. Two of those who died were treated intracranially. Ravaut[17] reports no ill effects in nine patients receiving 63 treatments. He used from 4.0 to 12.0 mg. of neosalvarsan in isotonic sodium chlorid solution. His clinical and serologic results are vaguely summarized. Marie and Levaditi,[18] treated 14 patients and of this number five died within a month. Two others showed evidence of severe local irritation, vesical retention, paresis of the lower limbs, etc. Out of the total number treated there was improvement in one case. Jeanselme, Verne and Block,[19] treated five cases of tabes, four of paresis, and one of latent syphilitic meningitis. They record no unfavorable sequelae other than temporary increase of tabetic pains, rise of temperature and general weakness. They used from 0.25 to 5.0 mg. doses. Clinically their results are inconclusive. They found a reduction of the cell and globulin content of the spinal fluid in most cases, and the Wassermann reaction influenced in four out of five tabetics. Lorenz[20] reports fifteen cases treated intraspinally with neosalvarsan dissolved in 0.4 per cent. sodium chlorid solution. In ten cases there was a reduction of cells, in eight, decreased globulin, and in four the Wassermann was changed to negative. He used from 0.03 to 0.06 mg. of the drug at each treatment and believes this method less dangerous than the Swift-Ellis. In the work of Marinesco and Minea,[1] referred to above, the authors used neosalvarsan in human serum. The serum was first inactivated by heating at 56 C. (100.8 F.) for thirty minutes. From 6.0 to 12.0 mg. of the drug was then added and the combination heated at 37.5 C. (99.5 F.) for forty-five minutes. Six out of twenty cases of tabes and latent syphilitic meningitis showed improvement in one way or another. There was no improvement in the remaining fourteen cases. There was no parallelism between the changes in the spinal fluid findings and the clinical results obtained. Transitory retention of urine was noted as the chief unfavorable sequela. Later the same authors[21] report having treated twenty-one cases of paresis intracranially with serum prepared in a similar manner. There were signs of improvement in seven cases and death in one. They used as much as 1.0 mg. of the drug in only 5 c.c. of the patient's serum. In this series they record epileptiform attacks, rhythmical spasms of the legs and a transitory hemiplegia on the side opposite the point of injection, following treatment.

---

[5] Tilney, F., and Woolsey, W.: A personal communication; to be published. Also Tilney, Frederick: Long Island Med. Jour., 1914, viii, 128.

[6] Flexner, A.: Jour. Exper. Med., 1907, ix, 168.

[7] Lamar, R. M.: Jour. Exper. Med., 1912, xvi, 581-606.

[8] Wollstein, A.: Jour. Exper. Med., 1911, xiv, 73.

[9] Flexner and Amoss: Jour. Exper. Med., April 1, 1914, p. 411.

[10] Swift and Ellis: New York Med. Jour., July 13, 1912.

[11] Swift and Ellis: Jour. Exper. Med., 1913, xviii, No. 4.

[12] Wechselmann, W.: Die Behandlung der Syphilis mit Dioxydiamidoarsenobenzol (Ehrlich-Hata 606), Berlin, 1911, ii, 11.

[13] Wechselmann, W.: Deutsche med. Wchnschr., 1912, xxxviii, 1446.

[14] Marinesco, G.: Ztschr. f. diätet. u. physik. Therap., 1913, xvii, 194.

[15] Berger: München. med. Wchnschr., 1914, lxi, 563.

[16] Beriel: Bull. et mém. d' hôp. de Paris, 1913, Series 3, xxxix, 970.

From a study of these results one can but conclude that, while apparently well borne in a small percentage of cases, neosalvarsan administered subdurally in any vehicle is attended with far too much hazard to warrant its use, even if the clinical results obtained were more encouraging. It is well known that both salvarsan and neosalvarsan attain their maximum spirocheticidal power only when in combination with blood-serum, and, as Swift and Ellis[22] have shown, this action is enhanced by heating at a temperature of 56 C. for thirty minutes. The heating of neosalvarsan at this temperature is impracticable because of its instability, and therefore its use is prohibited in any work that attempts to salvarsanize a serum in vitro. Recently Stühmer[23] has shown that salvarsanized serum, unheated, exerts a curative action for twenty-four hours in mice infected with trypanosomes, and a protective action for forty-eight hours, whereas, if the serum is heated at 56 C. for thirty minutes the curative effect is prolonged for three days and the protective influence for four days. He believes, with Swift and Ellis, that the heating of a salvarsanized serum in this manner is absolutely essential to promote the biologic and chemical changes necessary to attain the highest possible curative efficiency.

Convinced of the value of the Swift-Ellis method, from observation of results in some 200 treatments, but believing that, as in the employment of all other anti-syphilitic medication, the maximum efficiency would more readily be attained if we were able to increase or decrease the strength of our curative agent, I undertook, in November, 1913, to prepare in vitro a serum of known salvarsan content that could be safely administered intraspinally.

TECHNIC

The technic employed is as follows:

> About 50 c.c. of blood are drawn into a centrifuge bottle by means of a MacRae vacuum needle. The bottle is immediately placed in a large centrifuge and the fibrin and cellular elements are thrown down. It requires a speed of about 3,000 revolutions for fifteen minutes to produce a perfectly clear serum. It is rarely necessary to centrifuge more than once if the blood is freshly drawn, but the process should be repeated if the serum is not absolutely free from cells and fibrin. To 15 c.c. of serum is then added the amount of salvarsan to be given. This is done by mixing the salvarsan as for an intravenous treatment, using freshly distilled and boiled water, and bringing the total quantity up so that each 40 c.c. of the solution will contain 1.0 dg. (0.1 gm.) of the drug. Each cubic centimeter of this solution will then contain 2.5 mg. of salvarsan. With a 1 c.c. pipet, graduated into tenths, the desired amount can be readily measured from 0.25 mg. upwards. *In adding the sodium hydroxid it is of the greatest importance to use only the exact amount required to very faintly alkalinize the solution.* When this has once been determined by testing with litmus paper the sodium hydroxid should always be added quickly, and not drop by drop. *It is also very important that the temperature of the salvarsan and serum be the same when the two are mixed.* The serum is then gently agitated to thoroughly mix the two and is placed in a thermostat at 37 C. for forty-five minutes. From this it is placed in a thermostat at 56 C. for thirty minutes. It is now ready to be given intraspinally and it should be used as soon after preparation as possible. *Under no circumstances should a serum be used that is more than three hours old.*

The lumbar puncture is done with the patient lying on his side, the back flush with the edge of the bed, and the thighs flexed on the abdomen. Spinal fluid to the amount of 15 c.c. is permitted to flow through the cannula of the puncture needle, and the serum is then introduced by gravity from the barrel of a glass syringe. I have not found that the intraspinal pressure is of sufficient importance in the average case to require its measurement before and after treatment. In the absence of any evidence of extreme pressure the practice of simply removing the same quantity of fluid as of serum to be introduced has proved to be entirely satisfactory. After a treatment the patient is kept in the recumbent position, without pillows, and with the foot of the bed elevated, for four or five hours. The bed is then lowered, but he is not permitted to get up for from thirty-six to forty-eight hours, depending on the nature of the reaction following.

---

[17] Ravaut, P.: Bull. et mém. Soc. méd. d. hôp. de Paris, 1913, Series 3, xxxvi, 752, 761.

[18] Marie and Levaditi: Bull. et mém. Soc. méd. de hôp. de Paris, 1913, Series 3, xxxvi, 675.

[19] Jeanselme, Verne and Block: Bull. et mém. Soc. méd. d. hôp de Paris, 1913, Series 3, xxxvi, 792.

[20] Lorenz, W. F.: Wisconsin Med. Jour., 1913-14, xii, 171, 177.

[21] Marinesco and Minea: Compt. rend. Soc. de Biol., 1914, lxxvi, No. 4, 672, 674.

[22] Swift and Ellis: Jour. Exper. Med., 1913, xviii, No. 4.

[23] Stühmer: München. med. Wchnschr., 1914, lxi, 745.

In the cases herein reported a total of seventy-five treatments were given. The reactions observed have been chiefly in the form of root pains in the lower extremities. These followed in about 50 per cent. of the treatments, varied considerably in intensity, and were invariably more marked in tabetics in whom lightning pains had been a prominent symptom. In three tabetics with vesical insufficiency, this symptom was temporarily increased with the pain. In one paretic who had not previously had bladder trouble, there was retention of urine necessitating catheterization for several days following a dose of 3.5 mg. Another paretic developed vesical and rectal incontinence, with numbness and weakness in the lower extremities, within six hours after a treatment with the same amount. In this case the patient got out of bed a few minutes after the treatment was given and walked about the room. The severe reaction that followed was attributed, in part, at least, to the probability that the erect posture had prevented the serum from properly diffusing within the spinal canal, and had caused an irritation of the roots in the dependent part of the dural sac. With the exception of this patient, who, although slowly improving, has not yet completely recovered, the reactions have all been temporary. In several tabetics and one taboparetic there was accentuation of the ataxic symptoms coming on several days after a treatment. In every instance, however, these symptoms slowly disappeared, and the patient's condition was eventually improved over what it had been prior to the treatment. When pains have followed a treatment they have usually responded to the ordinary anodynes given for the relief of tabetic crises. Occasionally it has been necessary to give morphin hypodermically. In only one case was there any elevation of temperature following a treatment, and this disappeared in twenty-four hours. In 50 per cent. of the treatments there was no reaction of any kind beyond a slight temporary weakness.

As will be seen by the table in Case 4, as high as 4.0 mg. of salvarsan was given at a treatment. In this instance there followed a temporary retention of urine and severe root pain. Although numerous other instances show a dosage of 3.0 and 3.5 mg. I would particularly emphasize the importance of keeping the dose within 1.0 mg. The treatments given with relatively small amounts of the drug were well borne, and the clinical improvement was more marked than when larger doses were used. This was very noticeable in Case 1, in which the patient showed the greatest improvement while on small doses. It would seem that nothing is to be gained by using larger quantities of the drug, and, in addition, the possibility of injury to the nerve-tissue is reduced to the minimum when the dose is kept within the above mentioned limit. *For repeated use, from 0.25 mg. to 0.5 mg. is the safest and most effectual dose to employ.* The giving of heroic doses does not contribute to the efficacy of the treatment, but, on the contrary, not only minimizes its value as a therapeutic measure, but may entail grave danger to the patient.

The following reports[24] must be considered as purely preliminary, since sufficient time has not yet elapsed for proper observation of the cases. In order to present them as concisely as possible, only brief abstracts of the examinations and analyses made before and after treatment will be given.

REPORT OF CASES

Case 1.—Tabes. Man, aged 41, married, salesman, was seen Nov. 15, 1913.

Symptoms.—Patient has difficulty in walking; marked ataxia; general weakness; periodic root pains; loss of position sense in feet and legs; paresthesia; numbness in feet and legs; hypersensitiveness to hot and cold water. Duration, three to four years, steadily worse.

History.—Patient had syphilis ten years ago. Primary and secondary manifestations. Orthodox treatment for three months. From February, 1912, to October, 1912, he received fourteen intravenous treatments of salvarsan and neosalvarsan, and reacted badly to each; absolutely no improvement.

Examination.—Patient is poorly nourished, weight 116 pounds. Gait and station very poor. Uses heavy cane; walks with difficulty. Easily fatigued. Knee-jerks and ankle-jerks absent, right and left. Pupils: 2 mm., round; fixed to light; very sluggish to accommodation. Position sense in feet and legs, nil. Hypesthesia in feet, calves, and post-thighs.

TABLE 1.—RESULT OF TESTS AND TREATMENT IN PATIENT 1*

Analyses	Cerebrospinal Fluid	Blood Date	Blood Reaction
11/15/13	Wass. ++ in 1.0, 0.8, 0.6, 0.4 c.c.; — in 0.2 c.c. Cells 46 per cu. mm. Glob. ++, 0.2 c.c.	9/ 4/13	+=

Date of Treatment	Intraspinous mg. Salvar.	Reaction Root Pain	Intravenous Salvarsan	HG and KI
11/21/13	0.25	—		
11/29/13	0.25	—		
12/13/13	0.5	—		
1/ 8/14	0.75	—	None	No administration
1/27/14	0.75	—		
2/19/14	1.0	Moderate		
3/10/14	1.5	Moderate		
4/16/14	3.0	Severe		
5/28/14	3.5	Very severe		

Date of Analyses	Cerebrospinal Fluid	Blood Date	Blood Reaction
5/29/14	Wass. ++ in 1.0, 0.8; — in 0.6, 0.4, 0.2 c.c. Cells None. Glob. None	5/29/13	++tng
		6/ 9/13	—

* In these tables ++ equals complete inhibition; —, negative.

Examination.—June 2, 1914: Objective: Areas of hypesthesia in feet and legs are very markedly diminished. Patient's position sense is only faintly impaired, at times appears to be perfectly normal. Nutrition greatly improved. Musculature firm. He has gained 8 pounds in weight. Gait and station very markedly improved. Subjective: Patient states that he feels better than at any time since the onset of his trouble. He is able to walk from six to eight miles without the aid of a cane, and without undue fatigue. He has been absolutely free from pain and girdle sensations for more than three months.[25]

Case 4.—Postman, aged 23, single, seen Feb. 10, 1914.

Symptoms.—Patient shows marked weakness of lower extremities; ataxia, very marked; vesical insufficiency; almost constant dribbling of urine; pains in arms and legs, not severe in character but practically constant. Duration three and one-half years, steadily worse.

History.—Patient had genital ulcer four years ago. No secondaries of any kind. Six months later developed bladder weakness and difficulty in walking. All symptoms were pronounced within a year. In November, 1911, was given two intravenous treatments of salvarsan.

---

[24] For lack of space only four case reports are given here. The full series will be found in the author's reprints.

[25] He has had nine intraspinal treatments; no salvarsan by vein; no mercury or potassium iodid. The improvement was most noticeable when he was receiving small doses, that is, under 1.0 mg.

Examination.—Patient is very poorly nourished; musculature soft and flabby. Weight 110 pounds. He is unable to walk more than twenty feet without assistance. Even this requires a great effort. Position sense in lower extremities is nil. Marked incoordination both manual and pedal. Knee-jerks and ankle-jerks absent. Pupils: 3 mm. round, very sluggish to light; to accommodation normal.

TABLE 4.—RESULT OF TESTS AND TREATMENTS IN CASE 4

Analyses Date	Cerebrospinal Fluid	Blood Date	Blood Reaction
3/ 2/14	Wass. ++ in 1.0, 0.8, 0.6 c.c. — below. Cells 98 per cu. mm. Glob. ++, 0.2 c.c. (Marked excess.)	3/ 2/14	—

Date of Treatment	Intraspinous mg. Salvar.	Reaction Root Pain	Intravenous Salvarsan, gm.	HG and KI
3/ 2/14	0.5	—	..	No administration
3/17/14	1.0	Slight	..	
4/ 4/14	1.25	Slight	..	
4/17/14	..	......	0.5	
4/18/14	1.5	Severe	..	
5/ 6/14	..	......	0.5	
5/ 7/14	2.0	Severe	..	
5/22/14	4.0	Severe†	..	
6/ 6/14	2.0	Slight	..	

Analyses Date	Cerebrospinal Fluid	Blood Date	Blood Reaction
6/ 9/14	Wass. Negative in all dilutions. Cells None. Glob. ±, 0.2 c.c. (Very faint excess.)	6/ 9/14	—

† On this date there was temporary retention of urine.

Examination.—June 1, 1914: Objective: There is definite improvement in the pupillary light reflex. Other reflexes unchanged. Coordination improved in both upper and lower extremities. His station with eyes open is very good; with eyes closed poor. His gait, although markedly ataxic, has improved so that he walks very well with the aid of a cane. He has gained 8 pounds. Muscles of his lower extremities are much more firm. Subjective: He is able to walk the length of ten city blocks with but little fatigue. He can get on and off street cars without difficulty. He has no trouble with his bladder other than occasional difficulty in retaining urine if bladder is not emptied promptly. He has had no tabetic pains for the past six weeks. He states that there is a definite improvement in his position sense in his feet and legs.

Case 9.—Paresis. Man, aged 46, married, merchant, seen Nov. 3, 1913.

Symptoms.—Patient is wildly maniacal. He has been in this condition practically constantly for the past nine months. For the past four months it has been impossible to keep a stitch of clothes on him, and he has lived in a room devoid of all furniture except a bed. He fights his attendants and raves and curses at the top of his voice. He is tractable only in the presence of his family physician.

History.—No history of syphilis obtainable. Seven years ago patient suddenly developed diplopia which disappeared under mixed treatment. He suddenly became violent nine months ago and was immediately committed. During this time he has had a number of intravenous treatments of salvarsan given at irregular intervals whenever his condition would permit.

Examination.—Knee-jerks and ankle-jerks diminished; R > L. Pupils about 2 mm., irregular margins, practically fixed to light. He is unusually well-nourished. It is difficult to make a thorough examination on account of his excited condition. He is oriented as to place and person but very vaguely so as to time. He talks in a rambling, disconnected manner.

Examination.—May 1, 1914: There is definite improvement in patient's condition. During the greater part of the time he is quiet and tractable. For the past month he has dressed himself each day and walks about the grounds of the sanatorium with an attendant. Otherwise there is no change in his mentality.[27]

TABLE 9.—RESULT OF TESTS AND TREATMENTS IN CASE 9

Analyses Date	Cerebrospinal Fluid	Blood Date	Blood Reaction
11/ 8/13	Wass. ++ in 1.0, 0.8, 0.6 0.4 and 0.2 c.c. Cells 75 per cu. mm. Glob. ++ 0.2 c.c. (Marked excess.)	11/ 8/13	++

Date of Treatment*	Intraspinous Serum† Percentage	Reaction	Intravenous Salvarsan, gm.	HG and KI
11/ 8/13	50	—		Impossible to give either mercury or potass. iodid
11/15/13	..	..		
11/19/13	50	—	0.5	
11/29/13	75	—	..	
12/ 2/13	..	..	0.5	
12/ 6/13	75	—		
12/11/13	..	..	0.5	
12/15/13	80	—		

Analyses Date	Cerebrospinal Fluid	Blood Date	Blood Reaction
12/15/13	Wass. ++ in 1.0, 0.8, 0.6 0.4 c.c. — in 0.2 c.c. Cells 14 per cu. mm. Glob. ++, 0.2 c.c. (Moderate excess.)	12/15/13	++

Date of Treatment‡	Intraspinal mg. Salvar.	Reaction	Intravenous Salvarsan	HG and KI
2/20/14	0.75	—	None	Sajedin gr. 90 t.i.d. in food
3/11/14	1.0	—		
4/ 2/14	1.5	—		
4/10/14	2.0	—		

Analysis	Cerebrospinal Fluid	Blood
4/14/14	Wass. — in all dilutions Cells None Glob. ±, 0.2 c.c. (Very faint excess.)	Not made

* In this course of treatment the Swift-Ellis method was used. There was no change in his mental or physical condition. Patient was so resistive to treatment that it was necessary to precede each intraspinal injection with morphin and hyoscin hypodermically.

† Exogenous (Swift and Ellis).

‡ Serum of standard strength was used in this series of treatments.

Case 11.—Paresis. Man, aged 44, married, broker, seen Feb. 12, 1914.

Symptoms.—Patient has thick, slurring speech; defective memory; depression, epileptoid attacks; feeling of numbness in backs of hands, wrists, arms and forearms; irritability; childishness; numerous signs of slow mental deterioration. Duration, about eighteen months. First symptom was an epileptoid attack while in his office. Since then he has had numerous similar attacks; loss of consciousness, clonic and tonic twitchings, generalized.

History.—Patient had syphilis eighteen years ago. Genital chancre, no secondaries. Local treatment only. Within the past year he has had one intravenous treatment of neosalvarsan with potassium iodid and mercury by inunction irregularly. He has been unable to attend to business for some months. During the past week he had several epileptoid seizures within twenty-four hours and was dazed and disoriented the entire day. He has failed rapidly in every way during the past three months.

Examination.—Patient has typical paretic speech defect. It is often difficult to understand what he says. He shows a marked confusion of details covering the past six to eight months. There is a coarse tremor of the hands, tongue and at times the facial muscles. He is dull and stupid. Knee-jerks: right, normal; left, diminished. Ankle-jerks diminished. Deep reflexes of arms, normal. Pupils: round, 2 mm. fixed to both light and accommodation. His station and gait are normal.

---

[27] It is interesting to observe that there was no change whatsoever in the patient's condition while he was on the Swift-Ellis treatment, that there was an interval of over two months between this course of treatment and the four treatments with serum of standard strength, and that the serologic findings were rapidly influenced by the latter treatment.

TABLE 11.—RESULT OF TESTS AND TREATMENTS IN CASE 11

Analyses Date	Cerebrospinal Fluid	Blood Date	Blood Reaction
2/12/14	Wass. ++ in 1.0, 0.8, 0.6, 0.4 and 0.2 c.c. Cells 56 per cu. mm. Glob. ++, 0.2 c.c. (Marked excess.)	2/12/14	++

Date of Treatment	Intraspinous mg. Salvar.	Reaction	Intravenous Salvarsan, gm.	HG and KI
2/20/14	..	..	0.5	
3/ 4/14	..	..	0.5	
3/14/14	0.5	—		Mercury inunctions.
4/ 3/14	..	..	0.5	Potass. iodid up to gr. 60 t.i.d.
4/ 4/14	1.0	—		
4/18/14	2.0	—	0.5	
5/ 4/14	..	..		
5/ 5/14	3.0	—		Mercury inunctions.
5/18/14	3.5	Headache two hours		Potass. iodid up to gr. 60
5/27/14	..	..	0.5	

Analyses Date	Cerebrospinal Fluid	Blood Date	Blood Reaction
5/18/14	Wass. ++ in 1.0, 0.8 c.c. ± in 0.6 and 0.4 c.c. — 0.2 c.c. Cells 3 per cu. mm. Glob. Normal content.	6/12/14	—

Examination.—May 27, 1914: Objective and subjective: Patient is entirely free from all his original symptoms. He has not had an epileptoid attack since his first treatment. His speech is normal. He has no tremors. Mentally he is bright and alert. He has gained in weight and his general health is better than at any time in the past two years. The numbness of which he complained in his hands and arms has entirely disappeared. The deep reflexes are unchanged. The pupils are still fixed to both light and accommodation.

SUMMARY

From a study of these cases it will be seen that the laboratory evidences of active syphilis, as shown by the Wassermann reaction in the blood, and the cell-count, globulin content and Wassermann reaction in the spinal fluid, were reduced in every instance to a greater or less degree, and that, in the majority, there was a concomitant clinical improvement. As to the permanency of these changes one must necessarily hold a conservative view, since it is yet far too early to draw any definite conclusions. It seems reasonable to believe, however, that those cases that have responded favorably, both clinically and biologically, can be controlled with proper supervision and sufficient treatment.

The work is only begun. It is of interest at this time chiefly in that it demonstrates the practicability of giving salvarsan in small doses intraspinally without jeopardy to the patient. The importance of keeping the dosage within 1 mg. cannot be too strongly emphasized. The relatively small amounts of arsenic found in serum salvarsanized in vivo (according to the method of Swift and Ellis) suggests that its spirocheticidal properties are not wholly dependent on the salvarsan content, but probably also on the formation of some substances in the blood-serum, with the nature of which we are as yet unfamiliar. It was, therefore, in an effort to preserve, so far as possible, the principles of the Swift-Ellis method, that the plan of first incubating the serum at body temperature for forty-five minutes was evolved.

105 West Seventy-Second Street.

Its Value.—There is nothing of which men are so fond, and withal so careless, as life.—Bruyere.

THE PREVENTION OF COMMUNICABLE DISEASES IN GENERAL HOSPITALS *

D. L. RICHARDSON, M.D.
PROVIDENCE, R. I.

I cannot hope to present to you any scheme which will entirely prevent the introduction of transmissible diseases into hospitals. The object of this paper is to point out briefly how such incidence can be very materially diminished.

We must first take a more intelligent interest in this matter and provide the means for accomplishing better results. Very few American hospitals, either general or contagious, keep an accurate record of diseases contracted within the hospital and record them in their annual reports. At most, they make brief mention of any considerable outbreaks. This is an unfortunate state of affairs. How shall we make any progress until we face this problem honestly, publish our results, good and bad, and study the situation from the standpoint of facts, not theories? Such an endeavor will bear fruit and will be to the advantage of hospitals, for the incidence of infectious diseases to any considerable degree injures the local reputation of a hospital, diminishes its efficiency, and is a needless financial burden.

Before the direct consideration of the problem, I wish to emphasize a few principles which underlie the transmission of infectious disease and point out some errors which we have all been committing. We have been led to believe that the causative agent survives for a considerable period after leaving the human body and may be more or less widely distributed; that the entire room of an infectious patient and its contents—bed, bedding, etc.—are permeated by the organism causing the disease; and that such contagion may be wafted to neighboring rooms and buildings. Teachers and text-books have presented many examples of scarlet fever contracted from some article of clothing or toys used by a scarlet fever patient, years before. These are all fallacies, however, under which we have been laboring, and it is no wonder that efforts to control infectious disease have not yielded better results. The truth of the matter is that, fortunately for humanity, infective organisms, under ordinary conditions of drying, rapidly lose their virulence. Though we admit the claim of bacteriologists who tell us that they can resuscitate organisms after the lapse of considerable time, it is not proved that any one ever contracted disease from such sources. Indeed, there is much practical evidence against such a supposition, and to obtain results we must turn our attention to the most common ways in which infection actually does find its way into the individual living, for the purposes of this discussion, under hospital conditions.

Infectious diseases are kept alive in any community by exposure to frankly clinical cases, to missed cases which are unrecognized or unrecognizable, and to carriers. Infection is transmitted from these three sources to the well either by direct contact, or indirectly; that is, on commonly used articles, by insects, by water, milk, and perhaps other foodstuffs, especially the uncooked. Indirect infection occurs but rarely through an uninfected third person, and by clothing, etc. In all cases, the medium of indirect infection must have been freshly infected.

---

* Read before the Section on Hospitals at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

In hospital practice it is commonly believed that visitors introduce infection. This, I believe, is another fallacy, though I admit that they may do so on rare occasions; however, it is not of any practical importance. Many curses are heaped on the hospital laundry. This is also a mistake, for linen which has passed through washers as it is done in hospital washing is well sterilized. In practically all cases, the infection is introduced into the hospital on patients who are suffering from unrecognized infectious diseases, on patients who are carriers, or on patients who are admitted during the incubation period and not removed until damage has been done. It also happens, occasionally, that nurses and maids are on duty when in an infectious condition and may give rise to an outbreak.

I shall discuss the means of preventing such introduction of infection under two heads: construction and management. In treating of construction first, I do not mean to give it primary importance. It is, however, a factor of some consequence, especially as it bears on facilities for proper management. If, for instance, every person admitted to a hospital had a separate room during his entire residence, there would be less likelihood of a general, extensive outbreak of infectious disease; but such construction would not entirely prevent transmission. It would diminish personal contact but not indirect contact, a process which is of great importance in a general hospital where nurses and physicians, perhaps with fresh, virulent secretions on their hands, pass from one patient to another.

The construction which I would advocate for children's hospitals and for those portions of general hospitals given up to the care of children, comprises two departments: an isolation division and a convalescent division. Hospitals or portions of hospitals which treat adults only, do not require enough provision for the isolation of all new cases, though there should be sufficient isolation facilities for infectious or suspiciously infectious cases.

The isolation division should consist of rooms containing not more than three beds each. Fifty per cent. of the rooms should be for one patient only, and the capacity of the division should equal one-third, or better, one-half the total capacity of the hospital for children, but a much smaller proportion to the adult capacity of the hospital. The objection that single rooms are lonesome is not valid if they are situated on opposite sides of a common corridor and have sufficient glass area in the walls to permit of patients seeing and talking to those in other rooms. The isolation wards should be concentrated, but it is not necessary that they occupy a separate building. They should be centrally situated to favor transfers, but enough cut off from the rest of the hospital that they will not be a thoroughfare. An old open ward may be cut up into cubicles or stalls so that the beds will be 12 feet apart on centers, and should be provided with a sufficient number of lavatories to make hand washing convenient. The ventilation of the isolation wards does not need any special attention above that employed in other parts of the hospital. Of the ward equipment I shall speak a little later.

The isolation rooms described above are designed for the detention of all children under 14 years for a period of one week, if possible, and for the isolation of all real or suspicious infectious patients. All suspicious cases should be sent here, certain less highly transmissible diseases for as long a time as necessary, and all frankly clinical cases of contagious disease, provided there is no infectious disease hospital in the community to which to send them. Just here I cannot refrain from condemning the practice of sending home cases of contagious disease during a hospital outbreak, only to spread it in the community. There is a real objection to a detention period for surgical cases, particularly for those who need immediate surgical attention. As a matter of fact, surgical cases are less liable to bring infection into the hospital than medical cases. The situation may be met by providing each surgical ward with a sufficient number of detention rooms, and by removing to the isolation division all cases which are really infectious or suspiciously so.

The convalescent division is the main portion of the hospital and is to be kept uninfected by means of the filtration process already described. It should comprise wards or rooms of not more than twelve beds, and better, only six to eight in wards for children. The rooms for adults may be larger. At the end of a week's detention, all children may be transferred to the convalescent wards, as well as all other cases which have been proved non-infectious or free from infection.

It is the management, however, which is of paramount importance, and perhaps the admitting officer is the chief factor in this connection. From any point of view, this officer is of great value to the hospital, and especially with relation to the introduction of contagious diseases in new patients and the careful supervision of all cases in the hospital. In addition to the usual qualifications, he should have had practical experience with infectious diseases, particularly with regard to diagnosis and methods of control. If he has been rightly taught, he will have learned that over and above the positive clinical cases of all acute disease, there are a large number of doubtful cases and many which are unrecognizable. Chapin believes that the number of missed cases equals or may exceed the true clinical cases. The admitting officer must be familiar with the clinical syndrome of the various infections, their probable incubation periods, the ways in which the infecting agents leave the body, and special modes of transmission. He must always remember that every acute disease whose clinical picture is not evident on admission is a menace to the hospital until the diagnosis is made. He must remember that all sore throats, rashes, nasal or aural discharges, vaginal discharges, and coughs occurring either in new patients or in convalescents, require isolation for observation. He must be alert in detecting suspicious symptoms and he must be ultraconservative in placing with convalescents any suspicious case.

The admitting officer should have the supervision of the isolation wards and should be given complete authority to transfer patients into them from the convalescent wards, as well as from them into the convalescent wards. The management of the isolation wards is of the greatest importance. It must be carried out along the line of surgical cleanliness. Infection should be confined to the rooms occupied by patients, while the corridor, utility rooms, etc., are expected to be free from infection. In order to carry out these measures successfully, the isolation wards must be in charge of graduate nurses who have had experience with infectious diseases and appreciate the importance of proper aseptic nursing technic. It may be necessary to have two graduates on duty by day, if the number of patients is large, and it is important to have a graduate on duty at night, for undoubtedly errors in technic are more liable to occur at that time than by day. Pupil nurses who have had their operating room training are best adapted for the work; they must also have had their training in infectious diseases, if the hospital affords such training, and must be carefully selected. The same nurses, observing strict cleanliness, may care for all the patients in the ward.

You may say that such extreme care is not necessary for the ordinary case, even if a child, as it enters the hospital. But that is just the point I wish to make; namely, that because of our limitations in accurate diagnosis, we may let infectious cases pass into the hospital; if, however, they are first placed in properly conducted isolation wards, you may be very certain that little or no damage has been done. The further value of this detention period is seen in the opportunity it affords for further observation, cultures, vaginal smears, and other clinical examination to determine diagnosis.

Some of the conditions which should be sent to the isolation wards are sore throats, vaginal discharges, rashes, coughs suspicious of whooping cough, unexplained temperatures, nasal discharges, congenital and acquired syphilis, gonorrhea in any form, open cases of tuberculosis, septic conditions, impetigo, ringworm, cerebrospinal meningitis, anterior poliomyelitis, typhus fever, and all suspicious cases. Add to these all frank forms of the common contagious diseases, such as diphtheria, scarlet fever, measles, rubella, chicken-pox, whooping cough, etc., if the hospital must continue to care for them. Remember, however, that measles and chicken-pox are the most difficult contagious diseases to care for by aseptic nursing.

In order to confine the infection to the rooms occupied by the patients, they must be kept within their individual units, and everything must be surgically clean when it leaves the room. Certain equipment is necessary in order to accomplish this. The rooms should be provided with lavatories having forearm or foot valves; this is very important. There should be sterilizers for dishes, utensils, and bed-pans and urinals. There must be proper receptacles for refuse of all kinds, particularly things soiled with infectious discharges, all of which should be burned. The isolation rooms may contain from one to three beds; in the latter case, the beds should be from 10 to 12 feet apart on centers, in order to afford ample working space about them. The three beds in the same room may be utilized for different conditions, barring measles and chicken-pox, by barriering each bed separately so that the nursing force will know that they are to be treated as if in separate rooms. The many other details can be readily worked out, if one always remembers that patients suffering from different conditions must be physically separated and that strict surgical asepsis must be applied when passing from one unit to another. The danger of aerial transmission is a negligible factor. Fumigation of rooms is useless and a waste of time and money. The use of soap and water is sufficient. The nurses may live in the same home with the other nurses and eat in the same dining room, provided they change their uniforms and wash hands and face before leaving the ward.

There are several points in the general management of a hospital which I should like to emphasize. Nurses should be taught more about the transmissibility of disease and should be thoroughly imbued with the importance of cleanliness, both in protecting patients and in protecting themselves from infection. This should be taught them during their probation period. There should be a sufficient number of nurses, supplemented by nurse maids, to care for patients, particularly in children's, typhoid, and surgical wards. Many of the so-called precautions observed in all hospitals are truly of limited value. It is very important that there should be enough lavatory basins so that it will always be convenient for nurses and physicians to wash their hands frequently in running water. Every ward should have sterilizers for utensils, bed-pans, urinals, and dishes. Everything soiled with infective discharges should be carefully sterilized or destroyed. Nurses should be vaccinated against typhoid fever and small-pox. Printed instructions should be posted in all employees' rooms, stating how infectious organisms enter the human body, and itemizing the common ways based on the well-known fact that a large proportion of infectious diseases must enter through the oral cavity, so that everything must be kept out except food and drink, and these introduced with clean hands. As far as possible, wards should be under charge of graduate nurses, especially those in which children are treated. Head nurses should be taught to be always on the lookout for suspicious symptoms and should be authorized to barrier any case until the admitting officer has seen it. All new employees should have nose and throat cultures taken and all employees should be under watchful supervision at all times. They should never be sent on duty with sore throats or rashes or any acute illness, unless it is known to be non-infectious. Common drinking cups and common towels should be prohibited everywhere. Thermometers should be wiped and immersed for one minute in some antiseptic fluid before being used on the next patient. Soiled linen from infectious cases should be removed from the wards directly to the washers. The ambulance should be provided with clean blankets and pillow slips between infectious cases and the hands of driver and attendant washed. After the more highly infectious diseases, soap and water should be used on those parts of the ambulance which may have been touched by the patient. All new patients should have nose and throat cultures taken, and vaginal smears should be made on all female children.

These recommendations are based on four years' experience at the Providence City Hospital, in which a very large variety of highly transmissible diseases is treated and the problem of preventing patients contracting secondary diseases is much the same as in a general hospital, except that the danger is greater. I must not take time to develop further details or quote statistics about our results, but will refer you to the several hospital reports and articles published on our work.

SUMMARY

1. Infectious diseases are introduced into the hospital chiefly by new patients.
2. Well-equipped and well-managed isolation wards should be provided for all suspicious and infectious cases and for all children under 14 years during a detention period.
3. There should be very careful admission of all patients, nurses, and help, and supervision of the same.
4. There should be sufficient equipment for all wards and better teaching of nurses and help about infectious diseases.

Providence City Hospital.

ABSTRACT OF DISCUSSION

Dr. H. M. Bracken, Minneapolis: There is a great deal for a public-health man to know relative to the handling of infectious diseases, and the question of the proper hospitalizing of these patients is an important one. It certainly would be an advantage if we could house some of these patients in a general hospital, yet I presume it would hardly be safe for me to suggest such action. If handled in a general hospital it would have to be with as careful isolation as in a hospital set aside especially for that purpose, and sometimes this would be difficult. Dr. Richardson states that success in handling these cases depends largely on the individuals in charge and this is most certainly the case. I was pleased to note his attitude as to air-borne infection, and disinfection. As a matter of fact the spread of disease is chiefly dependent on personal contact with the infected. When it comes to the spreading of disease the whole thing depends largely on the nurse and the physician in charge. A great many patients are released too early. The sooner we throw fumigation to the wind the better. The ordinary method of fumigation conveys an idea of safety that does not exist. The proper care of the patient is important, while the burning of the so-called fumigating candles is a waste of time and money. I wish we were doing more in the way of hospitalizing the infectious-disease cases. It is a lamentable fact that, except in the larger cities, there is no proper hospital accommodations for such patients. Our knowledge of infection in relation to surgery revolutionized the hospital in its relation to surgery. In surgical work an individual is sent to the hospital to prevent his own infection. In preventive medicine we should send one individual to the hospital to prevent the infection of many others.

Dr. C. H. Cook, Natick, Mass.: How many physicians have seen a case of small-pox? I had service for six months in a small-pox hospital. Forty years ago I was willing to take my chances in diagnosing the disease, even mild cases of varioloid, but I would not to-day. I know the difficulties. If physicians have no opportunity to see these cases how are they going to become good diagnosticians? They read about them and that is all. I do not wonder that there is case after case of mild varioloid not recognized by the physicians. I do not think the general practitioner is to blame. One has to send for experts. I would have been willing forty years ago to serve, but I wouldn't to-day, although I have seen those cases. With regard to the way small-pox is carried, I have no explanation, but I want to state this fact: in an insane hospital, the extreme ends of which were 700 feet apart, one case broke out in each end. The patients had been there for years. I know this, for I had the care of the patients after they were admitted to the small-pox hospital. How did the infection occur?

Dr. William H. Walsh, Philadelphia: With the principles of the technic of contagious nursing, as set forth by Dr. Richardson, I am heartily in accord, but I believe that he is going too far in the matter when he declares it possible to nurse contagious diseases in an ordinary ward of a general hospital without the risk of contagion. Statements of this kind are misleading, for while it might be possible to carry out the rigid technic necessary for such work in Providence, R. I., it does not follow that the same work can be successfully done in other parts of the country, under different conditions. We all admire Dr. Richardson's work, but we realize that his hospital is a small one, and that the technic which can be successfully employed in a small institution is much more difficult to maintain in a large hospital. It might be considered, in many parts of the country, criminal malpractice to attempt the treatment of contagious cases in a general ward and I am exceedingly doubtful, in case an accident occurred, whether the excuse that a nurse had slipped up on her technic would be considered a mitigating circumstance. Dr. Richardson's whole theory depends on the infallibility of the nurse and we must not forget that nurses are only human and that in contagious nursing, as in any other occupation, there is a limit to the extent of human endeavor. The use of pupil nurses for this method of caring for contagious diseases would be almost impossible, for the reason that it requires a long, continuous training before nurses can be trusted in a ward with mixed infections; and it would therefore be necessary, if this technic were generally adopted, to dispense with the services of pupil nurses and depend entirely on graduates, thus materially increasing the cost. I did not learn from Dr. Richardson whether he would treat a case of scarlet fever and one of diphtheria in the same room, but I can most emphatically state that we would not attempt that in Philadelphia, where we have a staff of experienced nurses. Another point to be remembered in connection with municipal institutions is the fact that the nursing force is subject to sudden and extensive changes, and if such a thing should happen in an institution where Dr. Richardson's technic had been adopted, the whole system would be immediately turned upside down. I have recently learned that a number of smaller cities have attempted the treatment of contagious diseases in general hospitals, only to be met by dismal failure and considerable embarrassment.

Dr. H. O. Collins, Minneapolis: It has been stated that the usual method of disinfecting laundry is not reliable, that the sterilization process sometimes permits linen to go through without being disinfected. What method of disinfecting the linen of contagious patients is the best?

Dr. G. L. Kiefer, Detroit: Did Dr. Richardson, in speaking of the isolating of children under 14 years of age in a general hospital, mention the time?

Dr. D. L. Richardson, Providence, R. I.: One week.

Dr. G. L. Kiefer, Detroit: It does not seem to me that that answers the purpose, for the simple reason that a week does not reach the incubation period. We tried it out in one of the children's hospitals in Detroit, and lengthened the time of detention. The child may have been exposed some time before it came to you, or only the day before. One point Dr. Richardson made should be emphasized. It means more to me now than it did before I heard him say it, and that is with regard to the strict surveillance of all nurses so far as the possibility of their being infected is concerned. We have thought we practiced it, but I do not think we were careful enough. Supervision should mean personal inspection of all the employees at frequent intervals. Of course the answer to the gentleman who had the experience with small-pox, is that it was carried to the hospital. Our experience in Detroit with regard to the transmission of small-pox has been quite the opposite of that brought out in this discussion, and I am absolutely sure small-pox cannot be made an exception to these contagious diseases. For example, we put our cases of tuberculosis in a large building that had been occupied as a small-pox hospital. It was one building. There were separate entrances. At first the tuberculosis cases were put in the north wing and the small-pox cases in the south wing. There was never any small-pox in the tuberculosis hospital. We followed that up by having our tuberculosis hospital on the same ground, and never had a case come over to the tuberculosis side. Why some men still class small-pox as the one disease that can be transmitted through the air I never could understand. It is not different from any other.

Dr. Dana Hubbard, New York: New York handles between 75,000 and 82,000 cases of contagious diseases annually in a population of over five million people.

I have had something similar to Dr. Kiefer's experience, except that I attributed the infection to a central focus—in all probability, milk. Fly infection in small-pox hospitals must be considered. We took flies at North Brother island in 1892 and covered them with magnesia dust and flour and turned them loose; it was astonishing to see how many of these flies turned up in the kitchen. The hospital (Riverside) was built in units. The small-pox service is in a large, two-story brick structure, thoroughly screened, as we thought, with double doors at entrances, but the doors constantly being opened and shut let flies in and out. The small-pox patient, by reason of the pus odor, attracts flies, and it is difficult to keep them away from him. For eighteen months following the installing of screens we did not have a single case of small-pox develop in another ward. The foundling service gave us some bad cases of nasal diphtheria which attracted flies, and before the screens were installed small-pox appeared from time to time in this service. This was before the day of the recognition of the bacillus. Diphtheria broke out in our wards as cross-infection quite frequently and, in the small-pox service, more often than small-pox in the diphtheria service. Now, we are thoroughly screened and have very little trouble from cross-infection. I would not hesitate for a moment, if I had competent help, to put a case of diphtheria in any ward with any other contagious disease, as we do typhoid fever. I have seen diphtheria treated in Roosevelt Hospital in ward service without spreading the disease. I firmly believe that the strict aseptic handling of the patient proved that diphtheria could be treated in a general ward the same as typhoid. At the Chickamauga service in the Spanish-American war, we had typhoid fever by the hundred cases and I attributed its spread entirely to flies. Here the flies were smeared with magnesia dust and flour and turned loose and were caught in numerous other regimental camps. The toilets were open and unscreened. I believe typhoid fever in the Spanish-American war existed because of the failure to recognize the cause and to take proper precaution. I take exception to the elimination of fumigation. I do not believe we can say that fumigation is "not worth anything." Fumigation, properly done, will answer a good purpose. There are many instances where disinfection is necessary and can be properly done.

DR. J. P. SEDGWICK, Minneapolis: From my experience it is possible, with proper care in nursing and proper care of the hands, to prevent carrying these contagious diseases in a manner that we before thought impossible. There is a type of contagious disease which is frequently not considered such in hospital work, and which usually causes the infants more trouble than small-pox, diphtheria or scarlet fever. This type is what I might call, for want of a better name, the grippal infection, an infection of the respiratory tract particularly, which occurs frequently in children's wards. We have records in our wards in which the weight lessens with these infections and rises slowly after they are remedied, and we can follow these two together. We see this repeatedly. I think I can agree with one of the writers in the *American Journal of the Diseases of Children*, that these acute infections of the respiratory, urinary and gastro-intestinal tracts are more important to the hospital infants in causing a larger death-rate and holding back an increase in weight than are the common acute contagious diseases. The hospital grippal infections in infants, which are being studied so much by pediatrists, are important. Meyer believes that the well-known "hospitalism" of infants is due to these "grippal" infections.

DR. JOHN A. HORNSBY, Chicago: I am in almost constant receipt of inquiries concerning the proper means of taking care of the communicable diseases under the average conditions of a general hospital. We are not discussing ideal conditions for the care of the communicable diseases in institutions specially devised for them and handled by people specially trained over a period of years, but about institutions in the United States that are not equipped for taking care of these cases, but which, under the obligation of our newly conceived responsibilities, find themselves obliged to consider such. Goldwater and a good many of the best men in the hospital world think that no hospital of any kind ought to be permitted to exist unless it is prepared to take proper care of every case that comes to it, or of every disease that develops after the patient gets in; for instance, an eye hospital must take care of a pneumonia, or any other disease which develops. How is a hospital that is run for general purposes, to take care of any sort of sickness under crude equipment, going to handle those cases? Is it sufficient that we put a tapeline around the bed and practice Koplik's constructive isolation? Can we maintain it? Have we the nurses properly trained for it? Can we develop the technic of it among our medical men? Dr. Richardson's scheme is ideal; but I do not believe that the twenty-five- or fifty-bed hospital in Podunk can render such technical care of communicable diseases. Isolation is the thing, but we ought to think ahead a little to a time when they are about to build a hospital for Podunk. How should it be built so that they can take care of those cases in the light of our present knowledge of communicable diseases? The best way to do it is to isolate in the architecture of the building. Suppose, for instance, that we are building a hospital, and we have an area for communicable diseases, say four wards on two floors. Let us assume that we have a whole medical staff that is entitled to take care of patients; how would it do to have separation in the architecture and have different sorts of clothes for each one of the units? Suppose we have scarlet fever, diphtheria, and, let us say, small-pox. Why not have some brown clothes for scarlet fever? They have been sterilized and cleaned up and put in the lockers of the dressing-room to be there put on. Suppose the doctor puts on that brown suit, with head-piece, mouth-piece and gloves. He goes up with the brown clothes on to the scarlet-fever ward. On the same floor he has a case of diphtheria, across the hall. He goes over there, but the nurse says: "I am sorry, Doctor, but you have on the wrong clothes. Won't you kindly put on your diphtheria clothes?" That means that he has to go back, clean up, and take off the scarlet-fever clothes and put on the clothes used in case of diphtheria. I contended in one hospital that we have been building, that that sort of technic was ideal for the particular condition we had to meet.

DR. ROBERT J. WILSON, New York: The Schick test for determining if diphtheria antitoxin is present normally in the blood, is important with regard to the spread of diphtheria in the hospital. If no reaction follows, it means that there was one or two or three units of antitoxin in the blood; when we do give the injections to secure active immunization the antitoxin runs up immediately. The number of patients immune to all diseases all the time is very large, and it can be proved for diphtheria and inferred for scarlet fever, measles or any other infectious disease. To say that one cannot contract any disease by air-borne dust or exudates that have been recently deposited in the room, that is, within the length of time that we know the organism could not have died by drying, is contrary to scientific reasoning. If but little infectious material were in the room and no cases were susceptible no disease would be contracted, and, therefore, one could argue it was not air-borne; if out of many cases only one was susceptible and there were only a little infected dust, disease might not be contracted because those immune might inhale the dust and the non-immune would not get it. I am not going to consent to the non-air-borne proposition until it is proved that the organisms die instantly or within a reasonably short period of time after being deposited. No visitor is allowed from a home where there is contagious disease. In reply to Dr. Collins relative to the best way to sterilize the laundry; I think sterilizing washers give the best results; if you get the contents of the washer up to the boiling point all the germs that produce contagious disease are destroyed. In New York City we have a minimum period of quarantine—scarlet fever thirty-five days, measles five days from the beginning of the initial rash. We never discharge a patient who gives us reason to believe that infectious organisms are still retained in the discharges. Dr. Cook asked how you would educate all practitioners to be diagnosticians. It cannot be done, but every community should have in it one good diagnostician. Dr. Sedgwick referred to grippal infections. We found in the Willard Parker Hospital, about fifteen years ago, that some of our patients with very severe diphtheria were being carried off with bronchopneumonia, and we thought it spread from bed to bed; so to get around that condition we built stalls between every two beds in a ward and by this simple procedure the number of cases of bronchopneumonia was very much diminished. It has been proved that the droplets of sputum emitted by ordinary speaking will be suspended in the air for some time before they finally drop to the ground. Without intervention the slightest draft would carry them over to the adjoining bed; the wall prevents it.

Dr. D. L. Richardson, Providence, R. I.: Dr. Bracken spoke of carriers among visitors. These are, of course, a possible but I do not believe a very frequent source. If we rule out visitors to the children's ward under 14 years of age that would eliminate danger to a large extent. With regard to nursing, if one tries for oneself what nurses can do and will do regarding aseptic nursing, one's ideas will change. Relative to pupil nurses, we have a staff of graduate nurses and from twelve to fifteen pupil nurses who come to us and work in the diphtheria and scarlet-fever wards, and one isolation ward, and they stay with us only two months altogether, but you would be surprised at the intelligence and care they exercise. I grant that it would be a good deal better if you could have all graduate nurses, but the expense is sometimes prohibitive. If you can get nurses who have had operating-room training, and have had some experience, say in the third year of their course, and teach them the simple elements of absolute cleanliness, you can expect better results. I advise anybody who does not believe it to take a ward of six beds in an infectious hospital, and try it. That is the only way to be convinced. Dr. Kiefer spoke of a detention period of one week. I spoke of that merely as a working-basis which we have taken in our hospital. It is not long enough for measles, chicken-pox, etc., but it is a great help, because the numbers of cases that would be exposed just before admission to the hospital would be comparatively small. All hospitals ought to be screened. It makes no difference whether they are contagious hospitals or not.

The respiratory and intestinal conditions I did not speak of. Dr. Sedgwick brought that to mind. In the children's hospital some day we will carry out the same exact conditions throughout. Dr. Hornsby spoke of isolation in architecture. I do not at all agree with him in that. Theoretically, every infectious-disease patient that enters the hospital should have his own room, nurse and service. Practically, that is utterly impossible, and with a small or a large hospital, unless it is a very large community, they cannot afford to build either a hospital or a portion of a hospital for measles, another for whooping-cough and another for chicken-pox, etc. If hospitals are to furnish an asylum for infectious diseases, they must provide the most feasible plan. You cannot control infection unless you have careful supervision and absolute cleanliness. With regard to outside physicians coming in, we have a consulting staff, and I have failed to find a man who will not do as he is requested.

OIL OF CHENOPODIUM IN THE TREATMENT OF HOOKWORM INFECTIONS

ROBERT L. LEVY, M.D.
Assistant Resident Physician, Johns Hopkins Hospital
BALTIMORE

The majority of observers at present regard thymol as the vermifuge of choice in the treatment of uncinariasis. The work of Stiles and of the Porto Rican Commission has clearly demonstrated its value. The administration of thymol, however, is associated with certain very definite disadvantages: 1. It does not succeed, in a certain number of individuals, in eradicating the infection. 2. Its ingestion is accompanied in about 45 per cent. of cases by disagreeable after-effects, as has recently been pointed out by Stiles and Boatwright.[1] 3. In a few instances, it has produced fatal poisoning. 4. At present, owing to conditions brought about by the European war, the supply of thymol is limited and its cost high.

It seems desirable, therefore, to call attention to the use of a vermifuge which has apparently been entirely overlooked in this country in the treatment of hookworm disease and whose value in this connection has recently been pointed out by Schüffner and Verwoort.[2] The object of their investigations was to determine whether or not thymol deserves its reputation as an anthelmintic in uncinariasis, especially as compared with more recently suggested remedies. Accordingly, 1,457 infected individuals were put through two "cures" at intervals of several days, thymol being regularly alternated with one of the other preparations to be tried out. In this manner two parallel columns of statistics were obtained, one in which a group of patients had received thymol first, the other in which they had taken it second. So both drugs had the opportunity of demonstrating their action on untreated as well as on previously treated parasites. The strength of the anthelmintics was rated in proportion to the number of worms found in the washed stools.

As a result of these comparative studies Schüffner and Verwoort determined that the "coefficient of efficacy" of the various drugs investigated, was as follows:

1. Oil of eucalyptus, 38.
2. Beta-naphthol, 68.
3. Thymol, 83.
4. Oil of chenopodium, 91.

Cases of infection with both the New and Old World types of worm were included in their series. In no instance in this large number of observations were disagreeable symptoms noted, nor were there any signs of intoxication following the taking of the chenopodium. They conclude, therefore, that the oil of chenopodium, in view of its remarkable efficiency and its harmlessness, deserves a thorough trial in the campaign against uncinariasis.

CASE REPORTS

The following case, from the service of Prof. L. F. Barker, and shown before the Johns Hopkins Hospital Medical Society, Dec. 15, 1913,[3] afforded an unusually good opportunity for trying out the comparative efficiency of thymol and the wormseed oil. It is, as far as can be determined, the first report in this country, of a case of uncinariasis treated with oil of chenopodium.

Case 1.—O. C., a Norwegian sailor, aged 23, was admitted to the Johns Hopkins Hospital, Oct. 13, 1913, complaining of headache, general bodily pains and swelling of his legs. The present illness began in Mexico one month before admission. There, for the first time in the course of his wanderings, he went about barefoot. He soon developed a painful sore on the dorsum of the left foot, which discharged and resisted all efforts made to treat it. There was no itching of the foot. Shortly afterward the feet and legs began to swell and the patient felt weak and incapable of work. He entered a hospital in Mexico and remained there for three weeks, during which time he was given no medicine. The swelling of his legs disappeared, however, and he was discharged somewhat improved. Twelve days before admission here, his legs again began to swell, he felt feverish and weak, and there was moderate diarrhea, so he boarded a ship for this country and landed in Baltimore.

On admission, there was striking pallor, fever, tachycardia, brawny edema of ankles and lower legs and a pigmented scar on the dorsum of the left foot. He was extremely weak and very irritable. The blood showed: red blood cells, 1,660,000;

---

[1] Stiles and Boatwright: Thymol Administration: Subjective Effects in 464 Administrations in 243 Patients, Pub. Health Rep., 1913, xxviii, 1497.

[2] Schüffner and Verwoort: Das Oleum chenopodii gegen Ankylostomiasis und eine neue Methode der Wertbestimmung von Wurmmitteln, München. med. Wchnschr., 1913, lx, 129.

[3] Levy: A Case of Infection with Agchylostoma Duodenale Treated with Oil of Chenopodium, Bull. Johns Hopkins Hosp., 1914, xxv, 160.

white blood cells, 6,440; hemoglobin, 25 per cent. (Sahli). In addition, there were seen many hyaline and crescent forms of estivo-autumnal malaria. An examination of the stools revealed ova of *Trichocephalus dispar* and *Ankylostoma duodenale.*

The malarial infection was soon under control. The whipworm ova spontaneously disappeared from the stools following vigorous purgation. But the usual medication with thymol, as recommended by the Porto Rican Commission, failed to expel the hookworms, though the treatment was thrice repeated at intervals of one week.

Accordingly, the patient was given the oil of chenopodium essentially in the manner prescribed by Schüffner and Verwoort. He was starved for eight hours, at the end of which period he was given an ounce of Epsom salt. Two hours later 16 drops of the oil of chenopodium on a teaspoonful of granulated sugar were administered. This dose was repeated at two-hour intervals until three doses had been given. Two hours after the last dose of chenopodium the patient was given an ounce of castor oil, containing 50 minims of chloroform. On sifting of the stools collected during the next twenty-four hours, nineteen hookworms of the Old World type (*Ankylostoma duodenale*) were found. Ova continued to be discharged in the feces. On repetition of the treatment five days later, seven more hookworms were expelled and no ova could subsequently be demonstrated in the stools. Another course of chenopodium was given to make sure that no parasites remained; none were expelled. The stools continued free from ova. The man gained 30 pounds in weight. His blood on discharge showed: red blood cells, 4,110,000; white blood cells, 11,000; hemoglobin, 70 per cent. (Sahli).

A second case demonstrates in like manner the prompt success of the chenopodium when thymol medication had failed.

Case 2.—C. P., a South Carolina farmer, aged 33, entered the Johns Hopkins Hospital in the service of Prof. T. C. Janeway, Sept. 17, 1914, complaining of stomach trouble. He had previously been admitted to the hospital in September, 1906, with similar symptoms, which had appeared following an attack of "ground itch" earlier in the year. On the first admission, hookworm ova were found in the stools, and several thymol treatments were administered. Following therapy there was a gain of 6½ pounds in weight coincident with general improvement, and on discharge no ova were seen in the feces.

The present illness was a continuation of the gastric disturbance which had brought the patient to the hospital in 1906. After a period of about two years, during which he was relatively free from discomfort, there developed fulness after meals, belching and vomiting, associated with sweating, headaches, dizziness, dimness of vision and roaring in the ears.

Examination revealed a moderate secondary anemia, and an eosinophilia of 9.2 per cent. Ova of hookworm were seen in the stools.

The usual thymol treatment was ineffectual; ova continued to be discharged in the feces. So five days later the oil of chenopodium was administered as follows:

First Day: No supper. One ounce of Epsom salt at 8 p. m.

Second Day: 7 a. m., 9 a. m. and 11 a. m., 16 drops of the oil of chenopodium on a teaspoonful of granulated sugar; 1 p. m., 1 ounce of castor oil containing 50 minims of chloroform.

Unfortunately, the resultant stools were not carefully sifted and only one female worm (*Uncinaria americana*) was observed in a casual examination of the "castor-oil stool," in which the parasites are usually found. During the three weeks following the chenopodium medication, while the patient remained under observation, no ova were found on repeated stool examinations, and he left the hospital with a gain of 15 pounds in weight, much improved.

It is worthy of note that in neither case did the patient object in the least to the taste of the chenopodium, nor did he complain of any unpleasant effects following its administration.

Further experience is afforded in the following personal communication from Dr. C. G. Guthrie:

> During the past summer, which was spent in a hospital in Central America, an opportunity was presented of testing the efficacy of the drug (chenopodium) on a fairly large scale. Most of the patients admitted to the hospital were either Jamaican negroes or whites of the peon class. Among both of these the incidence of infection with intestinal parasites was extremely high; fully 80 per cent. harbored some form of parasite. Multiple infections were the rule, in one instance six types being present. Next to whipworm, the form of intestinal parasite most frequently encountered was the hookworm; both the Old and the New World types were found, the latter being the more prevalent variety.
>
> Thymol was the method of therapy in vogue at this hospital, and while it was, in the main, successful, many cases were observed that required repeated treatments, and a few in which three courses of thymol still left the patient heavily infected.
>
> Accordingly, it was considered desirable to try the effect of oil of chenopodium. The method of administration was patterned after that of Schüffner and Verwoort, except for the fact that the drug was administered in capsules. The criterion used for an effectual treatment was the disappearance of hookworm ova from the stools. The treatment was tried in about sixty cases, and the results compared with those obtained by other methods. These results, with the conclusions drawn, may be briefly mentioned as follows:
>
> 1. The treatment was well borne; no ill effects were noted and no complaints of subjective discomfort were elicited on careful questioning.
> 2. The treatment was successful in both Old and New World infections. It sometimes had to be repeated, but it practically never failed to eliminate some worms or to reduce the number of eggs in the stool.
> 3. It succeeded in cases in which thymol had been tried, sometimes repeatedly, and had failed.
> 4. When given in parallel series to unselected cases, the chenopodium seemed much more efficient than thymol.

OIL OF CHENOPODIUM

Oil of chenopodium, or American wormseed oil, as it is commonly called, is a volatile oil distilled from the fruit of *Chenopodium anthelminticum* Linné (of the *Chenopodiaceae* family), a roadside weed common in the United States, and most abundantly found in the eastern portions of the country. It has always been official in the Pharmacopeia of the United States. It is largely distilled in Maryland and is often referred to as "Baltimore oil" in contradistinction to the western or "Missouri oil" which has also played a rôle on the market. When recently distilled, it is of light yellow color, but becomes deeper yellow or even brownish by age.

It has a peculiar, penetrating, somewhat camphoraceous odor and a pungent, bitter, though not altogether disagreeable taste. Garrigues found it to be composed of two distinct oils separable by distillation; one of these has the formula $C_{10}H_{16}$ and is probably limonene. The other is heavier and possesses the formula $C_{10}H_{16}O$. A body having the formula $C_{10}H_{16}O_2$ has been recovered from the oil by Brüning.[4] Both in its general characteristics and pharmacologic action, it resembles closely the mother substance.

The oil has long been effectively used as an anthelmintic in the roundworm infections in children in a dosage of from 5 to 10 minims, two or three times daily for two days, to be followed by a brisk purge (Wilkins,[5] Brüning,[6] Gockel[7]).

---

[4] Brüning: Zur Kenntnis des amerikanischen Wurmsamenöles, Ztschr. f. exper. Path. u. Therap., 1906, iii, 564.

Its cost at jobbers' prices is from $2.50 to $3 a pound.

The account of the oil in the United States Dispensatory is concluded with the following statement: "Oil of chenopodium has in various cases acted as a lethal poison." In order to obtain further information concerning its toxicology, regarding which the available data are exceedingly scanty, the reported cases of chenopodium poisoning have been collected and are given in the accompanying table.

REPORTED CASES OF POISONING WITH OIL OF CHENOPODIUM

Case No.	Observer	Age of Patient, Years	Dose of Oil	Symptoms	Result	Remarks
1	P. T. T.[9]	6	Not stated; less than 1 ounce	Deep, stertorous breathing; small, weak, rapid pulse; eyes insensible to light or external objects; convulsive movements of right half of body; attempt at deglutition threatened *suffocation*	Death in 36 hours	Vial of what purported to be "Wormseed oil" obtained from a wandering quack; to be given in doses of 15 drops until worms were expelled
2	W. C. Paramore[10]	6	8 drops 3 times daily for 2 days; 8 drops on 3d day	Drowsiness; thirst; fever; nausea and vomiting; coma	Death in 4 days	Coroner's case; oil not followed by a purge
3	W. C. Paramore	3	6 drops 3 times daily for 2 days; 6 drops on 3d day	Drowsiness; thirst; fever; nausea and vomiting; spasms; coma	Death in 5 days	Member of same family as Case 2; no purge
4	W. C. Paramore	1	4 drops 3 times daily for 2 days; 4 drops on 3d day	Drowsiness; thirst; fever; nausea and vomiting; spasms; coma	Death in 8 days	Member of same family as Cases 2 and 3; no purge
5	T. R. Brown[11]	31	1½ ounces plus 30 drops of turpentine at a single dose	Vertigo; nausea and vomiting; deafness with buzzing in ears; periodic motor aphasia; staggering on attempting to walk; peculiar actions suggesting dementia; subsequently, spasm of right arm and hand, followed by right-sided paralysis; fever; convulsions; terminal icterus	Death in 5 days	Physician had ordered 1 ounce of castor oil and 20 minims of turpentine; prescription changed by neurotic patient
6	A. C. Pole[12]	2	2 teaspoonfuls in 1 afternoon	Prostration; restlessness; tachycardia; staggered on attempting to stand or walk; headache; abdominal pain; vomiting; deafness	Well in 5 days	Symptomatically treated; deafness gradually disappeared
7	I. C. Gable[13]	63	"Nearly" an ounce in divided doses in 1 day	Initial "peculiar symptoms" rapidly followed by coma, profuse perspiration and salivation; tachycardia; dilated pupils	Death next day	Necropsy: "No special symptoms in the stomach, though there was considerable smell of the oil about the abdominal viscera
8	Alfred North[14]	12½	1 dram	Next day heavy breathing; difficult to rouse; unsteady gait, with partial loss of coordination; frontal headache; ringing in ears; deafness; dulled mentality; 5 days after onset, coma, with weak, slow pulse; dilated pupils, sluggish to light, and vomiting; on 7th day, hallucinations; subsequently, steady improvement	Recovery in 2 weeks	Chenopodium given in a *mixture* so that exact *dose is uncertain*; partial persistence, at end of 2 weeks, of headache, deafness and tinnitus
9	Alfred North	10	About 1 dram	Nausea and vomiting; unable to walk or adjust clothing owing to ataxia; deafness, tinnitus and frontal headache	Recovery in a few days	Sister of patient reported as Case 8; given dose from same mixture; deafness still present after two weeks
10	Cited by North[15]	Adult	2 doses of "30 grains" each 3 hours apart	Found in coma	Death	No details given
11	A. K. Bond[16]	3	10 drops ineffectual; 2 days later ½ dram	Vomiting; stupor; pupils small; sweating; twitching of right hand; tachycardia; suppression of urine; râles in lungs	Death same day	
12	E. T. Ramsey[17]	61	1 tablespoonful	Numbness and tingling in hands and feet, followed by peaceful sleep; nine hours later, roused with difficulty; irrational; rapidly went into coma	Death same day	Patient a mentally deficient epileptic; administered overdose to herself

---

9. P. T. T.: Boston Med. and Surg. Jour., 1851, xlv, 373.
10. Paramore, W. C.: Chicago Med. Times, 1875, vii, 336.
11. Brown, T. R.: Maryland Med. Jour., 1878, iv, 20.
12. Pole, A. C.: Maryland Med. Jour., 1880, vii, 107.
13. Gable, I. C.: Philadelphia Med. Times, 1880, x, 404.
14. North, Alfred: Am. Jour. Otol., 1880, ii, 197.
15. North, Alfred: New York Tribune, June 15, 1880.
16. Bond, A. K.: Maryland Med. Jour., 1897, xxxvii, 289.
17. Ramsey, E. T.: Northwest. Lancet, 1903, xxiii, 325.

An analysis of this table brings out the following points:

1. Eight of the twelve cases occurred in children under 13 years of age.

2. Nine of the twelve cases ended fatally.

3. In seven instances, the individuals received what may be considered an overdose. Of the remaining five, the dosage is uncertain in two. In one of these (Case 1), what purported to be wormseed oil was obtained from a wandering quack, so that its exact nature is by no means certain. Furthermore, no limit was set as to the amount which might be given. In the *other case* (Case 10) we have only the account of a newspaper reporter to the effect that "two doses of thirty grains each were taken, three hours apart."

4. In the cases reported by Paramore (Cases 2, 3 and 4) death occurred in three members of the same family following the administration of what were apparently doses which may be considered within the limits of safety, though not followed by the usual purge. All were coroner's cases, yet no question was raised as to the amounts said to have been given by

---

5. Wilkins: An Account of the Oil of Chenopodium Anthelminticum, Philadelphia Med. Museum, 1808, v. 252.

6. Brüning: Weitere Erfahrungen mit dem amerikanischen Wurmsamenöl als Antiaskaridiakum bei Kindern, Deutsch. med. Wchnschr., 1907, xxxiii, 425.

7. Gockel: Ueber Askaridiasis und ihre erfolgreiche Behandlung mit dem amerikanischen Wurmsamenöles, München med. Wchnschr., 1910, lvii, 1643.

the father, nor was there any inquiry as to the nature of the contents of the bottle. Paramore himself asks, "Are these fatal results an accidental coincidence, or are we to suppose that in these three children some peculiar idiosyncrasy existed, forbidding the use of the remedy?" To which the editor of the *Chicago Medical Times* replies:

> In the cases above reported the wormseed oil, which was probably the Oleum Chenopodii, was administered in doses at least one-third larger than are usually recommended. Another element which may figure in the case is the difficulty which persons unaccustomed to dropping find in accurately dispensing medicines by the drop, hence the possibility that these children may have even taken more than was thought or intended.

5. The symptoms of poisoning have made their appearance usually several hours after taking the oil. Nausea, vomiting, abdominal pain and headache have been the first warnings of trouble. These were soon followed by drowsiness, deafness and tinnitus aurium, the latter having been a prominent feature in several instances.[8]

Ataxia, with staggering on attempting to walk, is noted by four observers. In the fatal cases coma has rapidly supervened, with tachycardia, convulsions, and in one instance right-sided hemiplegia. These symptoms indicate clearly irritation of both gastro-intestinal tract and central nervous system.

Concerning the pathologic lesions present, no data whatsoever are available. In the one instance in which a necropsy was performed, there is only the note that "there were no special symptoms in the stomach, though there was considerable smell of the oil about the abdominal viscera." In animals experimentally poisoned with oil of chenopodium, Brüning[3] has found hyperemia and small hemorrhages in the mucous membrane of the stomach and small intestines, and, microscopically, pigment accumulations in the liver and the formation of cylindroid-like structures in the convoluted tubules of the kidney.

MODE OF ADMINISTRATION

A convenient schema, which may be followed in administering the treatment, is herewith given:

First Day: Liquid diet; 8 p. m., 1 ounce of Epsom salt.

Second Day: Omit breakfast and luncheon; 5 a. m., 1 ounce of Epsom salt; 7, 9 and 11, 16 drops of the oil of chenopodium on a teaspoonful of granulated sugar; 1 p. m., 1 ounce of castor oil containing 50 minims of chloroform. Soft supper.

Third Day: Resume full diet.

The treatment may be repeated at intervals of one week until ova can no longer be found in the feces. The worms are usually expelled in the "castor oil stool." It is desirable to add the chloroform to the castor oil, as it appears to assist in the narcotization of the worms in their passage through the intestinal tract. In children, the size of the individual dose of chenopodium as advocated by Gockel[7] in ascaris infections, may well be adopted as a safe standard in the therapy of hookworm disease:

From 6 to 8 years, 8 drops.
From 9 to 10 years, 10 drops.
From 11 to 16 years, 12 drops.
Over 16 years, 12 to 16 drops.

CONCLUSIONS

1. Oil of chenopodium is an effective vermifuge in the treatment of uncinariasis.
2. It is not unpleasant to take, its ingestion is followed by no disagreeable symptoms and it is cheap.
3. In therapeutic doses it is non-toxic.
4. Oil of chenopodium deserves a thorough trial in the campaign against hookworm disease.

I desire to thank Professors Barker and Janeway for permission to report these cases.

CONGENITAL PHTHISIS BULBI

WITH REPORT OF A CASE

AARON BRAV, M.D.
Ophthalmologist to the Lebanon Hospital
PHILADELPHIA

Phthisis bulbi as a result of some suppurative traumatic or non-traumatic uveal inflammation is not a very rare condition, but shrinking of the globe as a result of uveal inflammation *in utero* is very rare indeed, and deserves to be recorded in medical literature. The case which I am reporting has been carefully differentiated from other congenital abnormalities, such as microphthalmus and anophthalmus, and by a process of exclusion fortified by a microscopic examination of the ocular discharge the diagnosis of phthisis bulbi seems clinically to be certain.

The child was delivered by Dr. Rappoport. Labor was normal. No instruments were used. While trying to instil a 2 per cent. solution of silver nitrate into the child's eyes, the doctor noticed that there were practically no eyeballs.

At the request of Dr. Rappoport I saw the case in consultation at Atlantic City on the third day after birth, July 29, 1914, and found the following conditions: Baby is well developed; weighs about 10 pounds; has several erosions on the face. One on the chin had some suppurative appearance. Eyelids were normal but closed. There being no attempt at elevation, they were, however, easily separated. I separated the lids with lid retractors so as to get a good view of the orbital contents. Both orbits showed marked signs of inflammation and contained some pussy discharge. There were no extraconjunctival folds or adhesions, but the conjunctiva was very much congested. Deep down in the right orbital cavity there was a remnant of an eyeball the size of a large pea. Scleral tissue was easily recognized, in the center of which was a slight remnant of corneal tissue about 2 mm. No pupillary area could be determined; neither was there any iritic tissue noticeable. The stump was soft and quadrilateral in shape and still showed evidences of a retrogressive inflammation. The conjunctiva was red and congested, but did not show any signs of an anatomic anomaly. The left eye was also in a state of inflammation and the stump was much smaller than in the right eye. The stump here was so small that it could only be seen after the lids had been well separated with lid retractors, and was deep down in the apex of the orbit. It could not be palpated. The discharge in the left eye was more marked than in the right eye. Limbs, upper and lower extremities were normal; so was the trunk and head of the baby. Temperature of the baby by rectum was 101.

The parents are healthy and apparently free from any taint. The mother is a well-developed woman and has had two healthy children before. Mother was well during the period of pregnancy except for a pustular acne eruption which appeared about one month before delivery. This was probably an external manifestation of some deep-seated infection. The mother attributed the condition to maternal impression as she says her older child had been playing with a doll that had no eyes. The only other etiologic moment the family recalls is a fright of the mother during a severe thunderstorm which occurred about three weeks before delivery. It is hardly necessary to say that neither of these causes could be given any consideration. Everything points to a severe inflammation. At my suggestion Dr. Rappoport has made a microscopic examination of the ocular discharge of the infant, and he reports to me the presence of diplococci which did not respond to the gonococcic stain.

---

[8] Sexton: A Note on the Aural Phenomena Produced by Chenopodium Poisoning, Am. Jour. Otol., 1880, ii, 197.

There is no doubt in my mind that we deal here with a case of phthisis bulbi, resulting from a suppurative intra-uterine uveitis. The marked local inflammatory symptoms, the absence of any other anatomic anomaly, the pustular eruption on the mother four weeks before the delivery of the child, the presence of the diplococcus in the ocular discharge, and the appearance of the stump make the diagnosis of phthisis bulbi certain. Of course the number of cases of microphthalmus reported in the literature are many, but most of them were the result of some arrest of development.

Opinions on this subject are divided. Hirschberg, von Graefe, Samelsohn and Deutschmann advanced the theory of intra-uterine inflammation, while the developmental theory was defended by Hess and Treacher Collins. There is, however, a definite group of cases in which there can be no reasonable doubt that the condition is one of congenital phthisis bulbi. This is especially true of Schaumberg's[1] case in which the eye continued to shrink after birth. In my case the inflammatory cause is well substantiated by clinical evidence and laboratory findings.

917 Spruce Street.

A SEVERE CASE OF EXOPHTHALMIC GOITER, WITH COMPLETE RECOVERY WITHOUT OPERATION, REST OR MEDICATION

Edward Swasey, M.D., Worcester, Mass.
Oculist and Aurist to Worcester City Hospital

It may not be safe or profitable to draw conclusions from any one case of illness, either medical or surgical; and yet a single case may present some features of importance and interest that may render its history worthy of public record. I believe the following case is in this class:

Mary M. is now 24 years of age. When she was 12 I gave her glasses for a rather high degree of astigmatism. She has been under my observation at intervals for these past twelve years. Some five or more years ago her mother first noticed a growth in the neck. This rather rapidly increased in size so that the neck band of her dresses required frequent enlargement. The girl soon began to show signs of nervousness, was easily fatigued, and complained of palpitation on slight exertion. Soon the eyes seemed to enlarge and become prominent. She consulted her family physician who gave her some simple tonics for her evident weakness.

Some months later she came to my office to see if some change in her lenses was necessary. The change in her appearance since her last visit one year before was decided, for now there were all the classical signs and symptoms of a typical case of exophthalmic goiter. The eyes were bulging, so that a line of white sclerotic was seen between the iris and the upper lid. The swelling in the neck was firm and pulsating; the pulse was then more than 150 per minute, soft and compressible. The ear or hand over the cardiac area showed a large pulsating heart, in rapid action. In fact, all the signs and symptoms of a well-established case of Graves' disease were present. I have had the case under observation from that time to the present. I gave her no medicine, but for a time she had a simple tonic from her physician and also from one of the city dispensaries.

The chief interest in this case, I believe, is not that she has entirely recovered, and that all her symptoms have disappeared; but that during the entire duration of these severe symptoms she was daily at her work at the counter of one of the largest department stores in the city. She continued her tonics for a year or more in a somewhat irregular way, but finding no benefit from their use gave them up entirely. A year or more after she had given up all medication she began to improve, in that she felt stronger and more able to do her work; the heart action was less troublesome, the swelling of the neck less evident. This improvement has gone slowly but steadily on until now (for I saw her but a few days since) the neck is free from any swelling, and palpation reveals no thyroid enlargement; the pulse is strong, steady and under 80 per minute; the eyes have returned to the normal in position and appearance. She has never taken any of the modern powders or serums that are now given for this trouble. She has never taken any season of rest in bed, but, on the contrary, has taken no vacation, but worked on. In the months that the symptoms were at their worst I felt certain she would have to come to a surgical operation to save her from the severe toxemia that I thought might overwhelm her in a severe attack of diarrhea or fatal exhaustion; but she said she must keep at her work and would not listen to advice for an operation.

I have recently followed the case of a patient in whom the symptoms were not more severe than in this poor girl, and not so long in duration, that finally came to operation in the Johns Hopkins Hospital, but the patient survived the operation but a few hours. I have had for a number of years a patient who has the eye symptoms and enlarged thyroid. Both of these have been stationary for years.

It may be that cases similar to this are common, and in a somewhat careful search in the literature of the subject I find many recorded cases of recovery, of course; but I have yet to find the history of one with severe symptoms for many months and a total duration of more than five years, yet going on to complete recovery that has not had prolonged course of treatment, either by rest in bed, the use of the modern drugs, the application of some external treatment to the thyroid, the Roentgen ray, or one or all of these at different times. Hence I believe that the case of this patient who had no treatment, but just work, and plenty of it, and yet has gone on to complete recovery, deserves a place in the records of this serious disease.

The question may arise regarding the subsequent history of this patient. Will this great and prolonged activity of the thyroid finally result in an atrophy more or less complete and cause a myxedema? It will be interesting to watch the patient for a few years.

390 Main Street.

TRAUMATIC RUPTURE OF THE HEALTHY AORTA WITHOUT EXTERNAL SIGNS OF THE CAUSE OF DEATH

Gordon Grote Copeland, B.A., M.B., Toronto

Complete rupture of the healthy aorta without external signs of the cause of death is of sufficient rarity to warrant the publication of a synopsis of necropsy which I made recently.

A laborer, aged about 40 years, was struck by a large mass of falling earth which gave him a glancing blow on the back and knocked him down, though it covered only his legs. A few seconds later he was picked up dead, and was seen by a medical man in a few minutes who could find no cause externally for the sudden death. I examined the body a few hours later but saw no apparent cause of death. There was a large scalp wound on the forehead down to the bone, but the frontal bone was not fractured. The mouth, nose and ears were free from blood or foreign matter. There was a little frothy mucus in the back of the throat. There were several small bruises on the body, especially over the right loin, and a suspicion that the pelvis was fractured.

---

[1] Schaumberg: Dissertation, Marburg, 1881.

The scrotum was torn and the testicles lay loose between the thighs. There was practically no hemorrhage.

The face, tongue, gums and mucous surfaces generally were blanched, and suggested internal hemorrhage.

INTERNAL EXAMINATION

The diaphragm was about 4 inches above the intercostal notch, and did not communicate with the thorax; though it was torn at several places, the rents did not extend through the muscle completely. There were nearly 10 ounces of free blood in the peritoneal cavity. The liver was terribly torn and ruptured so as to admit the whole hand at several spots. The right kidney was torn, but the capsule was intact and the blood did not go into the pelvis of the kidney or the ureter. The bladder was intact although the pelvis was fractured from the symphysis through the body of the pubic bone. The peritoneal surfaces of the intestines and many of the blood-vessels going to them were torn. With these lesions the abdominal cavity should have been filled with blood.

The whole condition was explained when the thorax was opened. The left pleural cavity contained 38 ounces of measured fluid blood. Opening into this cavity were the gaping ends of the descending aorta, which was cut across as cleanly as with a knife. The ends were separated about 1 inch at the widest part and half an inch at the closest part. The rupture was at right angles to the length of the artery. The aorta was quite healthy; the intima was smooth and devoid of plaques and dilatations as far as could be seen or felt. The heart was firmly contracted and the chambers were empty. The valves were normal, as was the heart in every particular. The coronary arteries were patent for a distance of 2 inches. I passed my finger through the aortic valve (the heart being opened *in situ*), and at the proximal opening in the torn artery, my finger tip appeared. The distance from the aortic valve to the tear was about 3½ inches. The right lung was adherent throughout to the chest wall and was very hard to remove. All the lobes were fused and the organ was quite solid and non-crepitant; it resembled the stage of red hepitization of pneumonia. The left upper lobe was normal but the left lower contained a lot of coagulated blood. Aside from the injury to the aorta, the man would have died rapidly from the terrible hemorrhage that would otherwise have resulted from the injuries to the liver, mesenteric vessels, etc. What caused the rupture I am unable to say, though the idea of a force acting like a contrecoup seems tenable.

73 Bloor Street, East.

EXOPHTHALMIC GOITER AS A CLINICAL MANIFESTATION OF HEREDITARY SYPHILIS

Oscar Clark, M.D., Rio de Janeiro, Brazil

I have had the opportunity, during the last five years, of observing an interesting case of exophthalmic goiter in a woman, aged 24, in whom there can be no doubt that it is a late clinical manifestation of hereditary syphilis. The patient began about five years ago to suffer from palpitation and tachycardia, accompanied by violent attacks of nervousness, while her mother also called attention to a swelling of the neck. There was very little protrusion of the eyes.

Four years ago when I was first consulted (shortly before leaving on a journey to Europe, during which I was kept informed of the progress of the case), the clinical symptoms had become decisive and the syndrome grew steadily worse until the patient fell into a drowsy, almost comatose condition, with pulse over 200 beats, the sphincters quite paralyzed, with continuous vomiting lasting a fortnight. Dr. Sylvio Moniz, a well-known Brazilian physician, was summoned to the patient in this very bad condition and had the happy thought of trying the Wassermann reaction. To this he was led by the "Olympic forehead" and the *crâne natiforme*, being told also that the girl when 12 years old, had had several "epileptiform" fits. The Wassermann reaction was strongly positive, both with the patient's mother and with the patient herself.

With this diagnosis, Dr. Sylvio Moniz prescribed mercurial frictions and epinephrin (1:1,000 solution, 20 drops three times daily) to relieve the arterial hypertension and the vomiting; the latter rapidly ceased, while the patient had in two days recovered consciousness.

After eight days the pulse was just 150 and the goiter sensibly smaller, while the protrusion of the eyes was a little better. After thirty frictions the patient was much better both as regards the hyperthyroidic manifestation and the general health. The next month she was given two injections of salvarsan (0.3 and 0.6 gm.). By the third month she had quite recovered. Neither the goiter nor the protrusion of the eyes was to be seen. The pulse was 75 beats and the nervousness had disappeared.

The patient returned to North Brazil (she was at Rio de Janeiro), and ceased the mercurial and salvarsan treatment. Twelve months later, however, the Merseburger triad reappeared but a fresh recovery has been effected by the same treatment.

I think that this case is undoubtedly one of hereditary syphilis appearing late, as Dr. Sylvio Moniz made every laboratory test in order to exclude tuberculosis, malaria, etc. The father is dead, of what cause I am not aware; the positive Wassermann in the mother has been mentioned. The patient is from the best society and is virgin and there can be no suspicion of syphilis by contagion. She has never had any clinical sign of infection, but on the other hand, presents skeletal stigmata, and, as previously remarked, had epileptiform fits at the age of 12.

Therapeutics

PREVENTION IS GREATER THAN CURE

(*Continued from page 1855*)

IX

PHYSICAL EXAMINATION AND PHYSICAL EXERCISE

When it is remembered that there are twenty million pupils in the public schools, large percentages (as previously stated) being defective in some form or other, it will not be surprising that the following recommendations for the physical examination of children, as distinct from medical inspection which will be discussed later, is urged. These recommendations seem more or less ideal, but they will come to be the rule, if not the law, nevertheless.

If it is agreed, as advanced by some thoughtful educators and physicians, that from the age of 6 to 8 the time should be devoted to physical culture directed by the public schools, and that book work should not begin until the age of 8, just what would be the method of procedure?

First, no sick child should be allowed in the public schools, whatever the age, and sick children should be immediately sent home to the care of their parents. Every child on entering the public school, we will say at the age of 6, should be carefully examined by a skilled physician. This is more than "medical inspection," which only seeks for contagious or transmittable diseases. The record of each child should be kept on a large card suitable for filing alphabetically. One side of the card should be filled out by the teacher with such data as name, residence, age, sex, nationality, height, weight; condition of parents (living or dead, and health), brothers and sisters (number and health); what diseases the child has had, besides a record of fits, headaches, asthma, hay fever, bilious attacks or attacks of abdominal pain (information on these subjects should be obtained from the parents by the teacher); the number of rooms in the tenement or house of the family, the number of windows in the sleeping room of the child, the number of persons sleeping in this room; and the kind of food and drink the child receives (question of coffee, tea, etc.).

On the reverse side of this card the physician should note the condition of the hearing, the eyesight and the teeth; defects in the palate; condition of the tonsils, question of adenoids, mouth breathing, condition of the nose, and of the glands of the neck; the shape of the chest and abdomen; any defects of the spine, legs and feet; and the condition of the lungs, heart and abdominal organs. If there is bed-wetting it should be recorded, and in such cases the condition of the prepuce noted by the physician, or the condition of the clitoris noted by the trained nurse. If there is suspicion of kidney disturbance the urine should be examined. If the child appears anemic the blood should be examined. A general statement of the state of health and nutrition, and the condition of the skin should be noted; also the medical opinion of the development of the child up to the present time. The disposition of the case should also be stated, that is, what advice was given. The card should be carefully dated. Subsequent examinations should be on a separate card, which should be clamped to the original.

The results of the foregoing examination should determine the proper treatment, if any treatment is needed, and should determine the instructions that should be given the parents as to the need of seeking the advice of their family physician or of consulting a specialist. Also, the outcome of this examination would disclose the need, or not, of special physical exercises to correct beginning deformities. All children deemed able should then be taught by a physical teacher the physical culture exercises deemed wise for children of this age; one hour a day of various exercises under instruction as classes, and another hour in the school playground. The physical teacher should devote two or more hours a day teaching and treating children with physical defects.

All of this requires money, but to what better object could public money be devoted than to building up the physique of our children and to prevent future defectives and future disease?

At 8 years of age the child is physically and mentally ready for regular school work (not too many hours, or too much home study, as previously cautioned). Such children on growing up keep the habit of exercise, thus acquired, to their benefit, as they will live in the age of labor-saving devices and work that requires but little muscular effort.

Bad home food and bad home and house hygiene would be corrected as far as possible by the visiting nurse, who can be the trained nurse attached to each large public school. Again, all this costs money and seems ideal, but such an outlay would pay the community good dividends on the investment by raising healthy citizens and in preventing disease. Some of this cost could be offset by not appointing so many teachers of things that are not essential and devoting more time to the groundwork of education.

To repeat, it should be urged to push only the essential studies, and curtail or cut out non-essentials and trimmings. Later, both boys and girls, but the latter especially, should be instructed in bacteriology and physiology and hygiene. Much valuable information may be given by the picture method of illustrating the causes of disease, etc.

It is not advised to pauperize the people by developing or using too many unneeded free dispensaries. *Let all parents, unless they are positively unable, take their defective children to physicians, surgeons and dentists of their own selection.* Of course provision must be made for those children whose parents cannot pay for such services; but let the visiting nurse make this decision.

As the children grow older they should be taught how to walk, and dancing exercises of the supervised type might be a part of the physical culture.

When the child is 8 years of age and begins the regular school work, its mental condition should be noted, unless it has been previously declared "feeble-minded." Those who are "feeble-minded" should be segregated and taught separately from the bright children, and an entirely different course and entirely different future plans of educational work should be outlined for such children, distinct from the regular course of instruction for the normal children.

It is an economic mistake not to separate mentally defective children from normal children. Three years ago it was estimated that there were three million children in the United States repeating a school grade a second, third, or even a fourth time at a cost of a hundred million dollars annually to the country, a needless and wasteful expense.[2] It is declared that the mental capacity of an idiot at any age does not exceed that of a child of 2 years; that of an imbecile of any age does not exceed that of a normal child of 8; and that of a feeble-minded person of any age may range from the normal mental capacity of a child from 8 to 13, but never exceeds the 13-year limit. These figures emphasize the necessity of the segregation of feeble-minded children, and also the crime of punishing for indifference or delinquency these children, who are doing all they can do.

The frequency of the physical examinations must, of course, depend on the findings in each case. Defective children should be examined, at least as to the condition of the defect first found, once in three, six or twelve months, depending on the kind of defect. The results, for instance in adenoid or anemic children, should be certified to by the trained nurse on the reverse side of the child's card; that is, whether or not operation has been done in the one case, or whether the child is improved or otherwise in the other case, the child, supposedly, being under the care of the family surgeon or physician.

All of this is paternalism, but only thus is the good of the greatest number accomplished, and no person should be allowed to cause himself to become a tax on the community, to spread disease, or to break well-known laws of health and hygiene.

As the child grows older, as suggested above, he should be taught general hygiene, the laws of contagion, and the ordinary methods of communicating each disease, and simple rules of prevention. Simple anatomy and simple physiology, and the simplest kind of life problems should be taught in public schools. Sex hygiene should not be taught to mixed classes or much in mixed schools. The girls, at or before maturing age, should be instructed in such hygiene individually, not in classes, by the trained nurse. The boys may be talked to by the principal of the school in small groups confidentially, not from the platform.

---

[2] Report of Committee on Medical Inspection of Schools, The Journal A. M. A., Nov. 25, 1911, p. 1753.

It is necessary to urge the foregoing physical examination because of the twenty million children attending public schools in the United States only about two-fifths have more or less efficient school inspection and only a very few have medical examinations, and the muscle strength and physical development of our people is said to be deteriorating.

It should be urged that good able physical instructors must be obtained, or serious mistakes are liable to be made. After 10 years of age it is very doubtful if the games and exercises played or taken by boys should be as strenuous for girls; but it has been shown by some careful observers that girls are not harmed by ordinary exercises while menstruating. In fact, it is a serious error for a girl or her mother to believe that she must be an invalid for one or two days every time she menstruates, and a young ladies' seminary that puts each girl to bed for a day at each menstrual epoch does a serious mental injury to the girls. On the other hand, it is not advisable to cause these growing, maturing girls to climb stairs all day in a schoolhouse.

Chronically nervous children, and certainly the epileptics, should be sent home until cured (if cure is possible), or given an entirely different kind of schooling, away from large numbers and the shame caused by the publicity of their defects. Open-window or outdoor schools with small numbers of pupils and individual teaching, and scientific medical psychopathic decision of the best management to overcome such nervous defects as stage fright, stammering, weeping, brain storms, etc., should be the course followed with such children. The regular teachers, underpaid and overworked, should not be made responsible for the instruction or welfare of these children.

The only treatment for developed chorea is rest in bed; if the case is not severe, open air treatment in the country or at the seashore is essential, best where it is warm, and where the child can be under the care of one well-balanced person. Books, and playing with other children should generally not be allowed. Parenthetically, it might be mentioned that rheumatic germs should be suspected, and all disease from tonsils, adenoids, teeth and gums eradicated.

Mental fatigue (with good judgment as to hours of confinement and study and of intermittent play and exercise periods) should rarely occur, except in the nervous or neuropathic or otherwise diseased child. Precociousness and the morbid desire to overstudy is a sign of mental unhealth, and such children should be restricted in their book work and be compelled to do more physical work. If such management is not successful, they should be treated as psychopathic and as nervous children.

It may be briefly suggested here that adenoids, which are so frequent in young children, tend to shrink by the age of 14 or 15; but the teacher may readily observe, without medical examination, that a child is a mouth breather, looks dull and stupid, that there is beginning deafness, that the speech is imperfect, and that the chest expansion is incomplete. Mouth breathing interferes with the growth of the face and nose.

About 1 per cent. of children have discharging ears, and such ears may carry infection. Hence both for the child's sake and for the sake of others a discharging ear should be treated by an expert.

Eye-strain is of frequent occurrence in children, and headaches, granular lids, twitching of the lid muscles, and disturbances due to imperfect eyesight should be ever watched for by the teacher. Much absence from school, much loss of appetite, much nervousness, and much inability to study properly and advance are due to eye defects, a large proportion of which may be corrected.

(To be continued)

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THEIR ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS ARE ASKED FOR TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK "NEW AND NONOFFICIAL REMEDIES."

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT, SO FAR AS KNOWN, IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

BACILLUS PYOCYANEUS VACCINE (See N. N. R., 1914, p. 254).

E. R. Squibb and Sons, New York City.

Pyocyaneus Vaccine.—Marketed in boxes of 6 ampoules containing respectively, 100, 100, 500, 500, 1,000 and 1,000 million killed bacilli, with a syringe.

STREPTOCOCCUS VACCINE (See N. N. R., 1914, p. 257).

E. R. Squibb and Sons, New York City.

Streptococcus Vaccine.—Marketed in boxes of 6 ampoules containing respectively 100, 100, 500, 500, 1,000 and 1,000 million killed streptococci, with a syringe.

FRIABLE TABLETS OF EMETINE HYDROCHLORIDE, Mulford.—This dosage form of an accepted article has been accepted for inclusion with New and Nonofficial Remedies.

Each tablet contains emetine hydrochloride 0.032 Gm. Prepared by H. K. Mulford Co., Philadelphia.

ANTIRABIC VACCINE (See N. N. R., 1914, p. 269).

Pasteur Institute of St. Louis, St. Louis, Mo.

Antirabic Vaccine.—The virus is obtained from glycerinated brain substance. Marketed in 5 Cc. ampules. The treatment consists of eighteen doses which are sent by mail daily by special delivery, each dose being slightly larger than the preceding.

TYPHOID VACCINE (See N. N. R., 1914, p. 259).

H. M. Alexander and Co., Marietta, Pa.

Typhoid Vaccine, Immunizing.—Marketed in packages of three syringe containing respectively, 500, 1,000 and 1,000 million killed typhoid bacilli. Also marketed in packages of three ampules containing respectively 500, 1,000 and 1,000 million killed typhoid bacilli and in packages of ten sets of three ampules containing respectively, 500, 1,000 and 1,000 million killed typhoid bacilli.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street . . . Chicago, Ill.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

Contributors, subscribers and readers will find important information on the second advertising page following the reading-matter.

SATURDAY, NOVEMBER 28, 1914

RUBBER AS A SOURCE OF HYGIENIC DANGER

Every physician is necessarily interested in the chemistry of rubber because this is one of the materials which enter into numerous articles and devices daily applied in medical and surgical practice. Experience teaches the unlike qualities of different types or brands of rubber. Some of them retain their original elasticity for a long time under the imposed conditions of usage, while others speedily deteriorate into brittle and useless scrap despite the various precautions of preservation that are embodied in familiar directions. The economic aspect of the quality of rubber goods offered for sale to the medical profession is an important one, because the expenditures in this department of the physician's equipment as well as of the supplies for the sick room and hospital are not inconsiderable.

The time is arriving when the purchaser of rubber will demand some reliable information as to the quality of the product which he is paying for. Rare, indeed, is the person at the present time who has any idea whatever of the make-up of rubber. Pure india-rubber, or caoutchouc, in its natural state is entirely unsuited for commercial use. It is soft and sticky, and readily undergoes spontaneous oxidation to a hard, brittle resinous substance. By vulcanization, a process in which mixtures of the crude gum with sulphur, or metallic sulphids or oxids are heated, a rubber is formed which is more permanently elastic and less subject to spontaneous change. The simplest type of vulcanized rubber, such as would be obtained from a properly heated mixture of sulphur and pure gum, is quite soft and offers little resistance to ordinary rough usage. Rubber of tougher qualities, but with lower elastic limits, is produced by the addition of metallic oxids, such as those of lead and of zinc, to the other ingredients before vulcanization. Among other constituents added to give required characteristics are the various pigments which furnish the color, Venetian red (iron oxid), ultramarine, lampblack and various organic dyes being among the ingredients which are employed.

A recent government report[1] calls attention to the fact that a large number of additional materials are used in rubber compounding simply to reduce the cost of the product. Among these may be mentioned whiting (calcium carbonate), barytes (barium sulphate), clay and various rubber substitutes, such as artificial rubber, oils and tar products. Finally, so-called recovered rubber, or shoddy, is used to a large extent in rubber compounds, resulting in a varying and generally unknown composition of the mineral constituents of the finished product. It is further stated that antimony sulphid can replace the sulphur, wholly or in part, in a simple vulcanized rubber, the resulting product being a brilliantly colored terra-cotta rubber. As the metallic base also gives a certain toughness and durability to the product, the use of antimony sulphid in place of sulphur was formerly considered highly desirable in the production of a rubber having wearing qualities. Despite the fact that even better wearing qualities can now be obtained by the use of other metallic compounds, especially zinc oxid, red rubber is still popularly regarded as a superior product. This in turn has led to the artificial coloring of ordinary rubber by the use of other compounds, such as iron oxid and organic coloring matter, so that one may find on the market many varieties of red rubber that are free from antimony.

In the case of most articles of rubber the existence of filling materials, pigments, etc., has no hygienic import. Cost and durability are the chief concern of the purchaser. The use of various heavy metals in the manufacture of nursing-nipples and small rubber toys affords an instance of a possible unsuspected danger to the health of infants, who tend to extract soluble products from such articles in the mouth or by the gastric juice when small pieces of the rubber are accidentally swallowed. Obviously they should be free from soluble toxic substances.

The Public Health Service has lately published information respecting the general characteristics of rubber used in nipples and toys with special reference to the use of heavy metals and to the presence of residual acidity in the compound. All specimens examined contained both iron and aluminum in considerable quantities. This indicates a rather general use of clay as a filling material. In the red rubbers either zinc oxid or magnesia was used in addition, while in the black rubbers two samples contained zinc oxid and three samples contained barytes. Antimony was found in four cases out of seven among the black rubbers and in five cases out of eight among the red rubbers. The three remaining specimens of red rubber were colored with Venetian red. The white rubber toys contained clay and zinc oxid, and one of them contained barytes. No traces of arsenic, lead or mercury were found in any of the samples examined.

---

[1] *Phelps, E. B., and Stevenson, A. F.:* The Chemical Composition of Rubber Used in Nursing-Nipples and in Some Rubber Toys, *Hyg. Lab. Bull.* 96, U. S. P. H. S., 1914, p. 55.

The government chemists state that the occurrence of antimony in black rubber can be explained only on the hypothesis that rubber scrap or recovered rubber has been used in the compounding. We are told that the use of miscellaneous scrap, and especially of recovered rubber or shoddy, is objectionable because of its unknown chemical composition. The use of lead compounds in rubber preparations is common, and salts of mercury are used to some extent. Either of these metals would be highly objectionable in a compound to be used for nipples or children's toys.

A study of the solubility of the antimony found in rubber nipples—particularly of the red variety—was made under conditions approximating what might exist with infants. They showed an extraction of quantities of antimony of 20 per cent. of an emetic dose in normal saliva and of from 40 to 160 per cent. of an emetic dose in saliva of an acidity commonly found in an infant's mouth. It is apparent, therefore, without further discussion of the possibilities of a cumulative action of slight dosings resulting from the absorption of small amounts of antimony over a considerable period of time, that the use of antimony rubber in nursing-nipples, teething-rings and other rubber materials used by young infants is at least undesirable.

There are certain specifications which determine the general hygienic properties of rubber nipples in respect to ease of cleansing. With regard to the composition of these and other rubber articles which are given to young children the government report concludes: The articles should be made of a good grade of black rubber, free from shoddy and from antimony, lead, arsenic and mercury. Of the fillers commonly employed, magnesia, zinc oxid and clay are less undesirable, and barytes is probably without harmful influence. There can be no objection to a red rubber colored with iron oxid, although the advantages of such a compound will probably not compensate for the disadvantages of its being confused with antimony rubber.

CHANGES IN THE ADRENAL GLAND IN DISEASE

The large amount of discussion regarding the structure and function of the adrenal glands and the rôle they play in various diseases has given rise, on the whole, to conclusions which have been rather contradictory. According to Elliott,[1] the normal amount of epinephrin in the glands as estimated by various observers has been too low, owing either to faulty technic or to failure to take into account the rapid post-mortem loss of the substance. Usually this loss amounts to from 10 to 15 per cent. in eighteen hours, a considerable factor which must be taken into account in drawing conclusions from post-mortem material. The adrenal of a normal adult man should weigh from 4 to 5 gm. and should contain from 4 to 5 mg. of epinephrin. Conditions of fright, anesthesia, cerebral injury, bacterial intoxications, etc., have been found to exhaust the store of epinephrin in animals through the action of the splanchnic nerves, and it is fair to assume that these conditions probably produce a similar effect in man, so that any disease complicated with such conditions should show loss of epinephrin. In infectious diseases such as malignant endocarditis, pneumonia and all acute infections in general, the residual amount of epinephrin in the gland was found by Elliott to be considerably lessened, but apparently not enough in any case to endanger the circulation. The greatest loss was found in cases of afebrile, acute cardiac failure associated with great mental distress in the struggle for life. Simple cardiac failure without emotional disturbances, on the other hand, seems to produce very little loss of epinephrin.

The belief held by many that certain diseases with high blood-pressure are associated with hypertrophy of the medullary substance of the adrenal is not substantiated by Elliott. Obviously it would be difficult to measure the size of the medulla and the amount of epinephrin in the gland and circulation accurately enough to determine whether or not there is an increase in the amount of epinephrin. But if in a chronic case of high blood-pressure with renal disease, the patient dies from simple uremic intoxication without secondary infections and circulatory failure, without the adrenals being hypertrophied and without accumulation of epinephrin, we may then conclude that medullary hypertrophy is not a chief factor in the disease. In Elliott's work the glands examined in this condition did not show any enlargement which could not be ascribed to cortical adenoma or edema. In fact, there is no proof that the store of epinephrin is increased in any disease.

As a rule, changes in the medulla of the gland are slight if any; changes are common in the cortex, adenomatous growths of cortical substance being often found as, also, are changes in the amount of cortical lipoid. Under normal conditions the lipoid is stored in the form of doubly refractive granules, and when for any reason the cortical substance is diminished, the granules become smaller and finally disappear. These cortical lipoids are stored and lost under conditions entirely different from those which govern the other fats of the body. In persons dying from diseases with extreme emaciation, from starvation, such as is seen in anorexia nervosa or chronic tuberculosis without acute febrile reaction, in which the body fat is completely exhausted, there is little or no loss of cortical lipoids. In acute infections the cortical lipoids vanish rapidly. In Elliott's series of cases, pneumonia produced the most rapid and complete exhaustion. Scarlet fever, measles, malignant endocarditis and acute febrile tuberculosis also produced great loss [illegible] not so complete as pneumonia. In various septic infections the amount of loss depended on the severity of the infection, but was considerable in all cases. Diphtheria, being a disease of great toxicity and little febrile reaction, produced little loss of cortical fat. Also, a case of cerebral compression, in which there was a postoperative non-septic fever to 107 F. for long periods of time, resulted in no loss of cortical fat. On the other hand, chronic renal disease is often associated with cortical adenoma and hypertrophy. In this disease there is a tendency for cortical fats to appear in excess, especially in conjunction with arteriosclerosis. In these conditions, however, no definite relations can be said to exist, so that we cannot say that arteriosclerosis is caused by cortical hypertrophy. It is of importance, too, that according to Kolisko[2] constant changes are found in the adrenals in deaths from burns. There may be more or less extensive hemorrhagic infarction in acute cases, and when death occurs later, marked hyperemia with great reduction of lipoids. Possibly these changes stand in direct relation to the cause of death in burns, concerning which there are various views. It would be of interest to learn something in regard to the content of epinephrin in the adrenals in burns.

---

[1] Elliott, T. R.: Pathological Changes in the Adrenal Glands, Quar. Jour. Med., 1914, viii, No. 29.

The observations cited indicate the need of further work in the hope that the relationship of the structural and chemical changes in the adrenals in various morbid conditions to the general physiologic disturbances may be made clear.

THE PALPATION OF ARTERIES

By palpation, writes Osler in connection with the diagnosis of arteriosclerosis, we are enabled to judge with fair accuracy the degree of thickening of the vessel wall. It requires not only experience, but also education, to form a correct judgment on the state of the arteries. A perfectly normal vessel, when contracted, may feel hard and cord-like. On the other hand, in a radial definitely thickened, but in a state of extreme relaxation, the hardening of the walls may escape detection. The state of the tissues about the artery, the amount of fat in the skin, the size and fulness of the veins—all have to be considered. One of the commonest of mistakes is to regard as thickened any vessel one can roll under the finger. But in a state of very high tension and if very full, the arterial tube may feel cord-like. To estimate the presence of sclerosis it is not sufficient to examine the radials and temporals.[1]

It is as difficult at times, as it is important, to recognize the difference between the hard sensation conveyed to the finger by a high-tension pulse and that conveyed by stiffening of the arterial walls. The two may even coexist. If the palpation of the arteries is to reach the dignity of an accurate aid to diagnosis, it becomes necessary to be able to correlate the tactile impressions of the physician with the true anatomic and functional conditions of the vessels he is examining. A few competent investigators have actually compared the subjective impressions gained by palpation of the radial arteries with the structural conditions revealed in the same vessels on examination post mortem. The conclusions are far from concordant in respect to the sufficiency of the judgment of the respective observers. One group has gained the distinct impression that the palpability of the vessels actually depends on the relative thickening of the arterial wall, the thickening of the intima preponderating over the hypertrophy of the media. Another group of clinicians has reached an utterly skeptical conclusion. They have compared the histologic picture of the vessels examined with the recorded judgment of the clinician who previously examined them by palpation. Many of the arteries which felt at most only slightly rigid showed marked sclerosis of the intima; others, in turn, which exhibited pronounced rigidity on skilful palpation were free from significant histologic changes. There is no question as to the competence of the observers in these different cases; they rank among the leaders in American and European medicine. The impartial judge has inevitably been constrained to the tentative conclusion that the strength of the middle coat of the arteries and the varying conditions of tonus of the arterial musculature must be of some moment in the palpation of blood-vessels.

The skepticism awakened by careful investigations is, indeed, justified by a very careful study just published from Romberg's clinic in Munich and conducted under the guidance of Schlayer. This work of Landé[2]—a comparison of Romberg's judgment of the living subject with the actual anatomic finding after death—shows that in a very considerable number of cases of apparently rigid arteries the histologic picture furnishes no explanation for the estimated rigidity. These discrepancies, which may also involve the reverse situation of sclerotic vessels that go unrecognized by the touch of trained clinicians, are not merely occasional. At least half of the records collected in considerable number involved irreconcilable features. They lead to the conclusion that so simple a clinical fact as the rigidity of arteries is by no means correlated with equally simple anatomic and functional conditions of the vessels palpated.

In the actually sclerotic arteries, as Landé notes, the increase in rigidity is brought about by the alteration of the particular tissue portion which is most called into play functionally by the type of vessel concerned. In highly muscular arteries the smooth musculature of the media undergoes degenerative change; in the more elastic vessels it means the replacement of the more elastic fibers by less responsive connective tissue. Nevertheless, despite these unlikenesses in acquired pathologic structure, the palpable effect—the arterial rigidity—is essentially the same. For the other cases of rigidity, when an anatomic exhibition of typical sclerosis is lacking, the explanation is not easy. In some, such as the arteries associated with contracted kidneys, there may be an increase in the entire thickness or volume of the vessel wall; in still others, the cause of the palpation results is not evident. The comparison of post-mortem facts with ante-mortem clinical judgments has long been one of the best and surest ways of bringing progress into the field of diagnosis. We need more of it.

---

[2] Kolisko: Vrtljahresschr. f. gerichl. Med., 1914, xlvii.

[1] Osler, W.: Modern Medicine, 1908, iv, 443.

[2] Landé, Lotte: Ueber die Palpabilität der Arterien, Deutsch. Arch. f. klin. Med., 1914, cxvi, 295.

EMBOLISM AND THROMBOSIS OF THE MESENTERIC VESSELS

Occlusion of the mesenteric vessels is regarded generally as a very uncommon condition. It occurs often enough, however, to require consideration whenever obscure, acute abdominal lesions are subjected to thorough examination with a view to accurate diagnosis and proper treatment. That it is not in any sense an extremely rare disease is shown by the fact that recently Trotter[1] collected no less than 366 cases, seven being original, from the careful study of which he has been able to draw some valuable conclusions. It appears that the disease rarely affects children, adults between 30 and 70 years being most liable to be attacked, and men nearly twice as often as women. The occlusion may involve the arteries (53 per cent.), the veins (41 per cent.), or both together (about 6 per cent.). The superior mesenteric vessels appear to be involved much more frequently than the inferior. In 64 per cent. of the cases considered by Trotter, the result was hemorrhagic infarction of the intestine. Anemic infarction occurred in 2.7 per cent. When typical infarction was absent, extreme engorgement, ulceration or perforation were observed in the area corresponding to the occluded vessels. The most common cause of arterial occlusion appears to be embolism, originating in most cases from acute or chronic endocarditic changes, and less frequently from thrombi in the aorta or heart. Occasionally, however, occlusion results from thrombosis due to chronic, sclerotic changes in the mesenteric artery or in the aorta. Occlusion of the mesenteric vein is due to thrombosis, usually a downward extension of thrombosis in the portal vein, but occasionally arising in the mesenteric vein itself as a result of an inflammatory process in the appendix or in the pelvis in the case of women.

The most striking clinical manifestations of mesenteric occlusion are sudden onset, acute abdominal pain, vomiting and diarrhea, the stools and vomit not uncommonly containing blood, the stools sometimes a great deal. In some cases constipation is present. Usually shock is severe with rapid and irregular, small pulse and normal or subnormal temperature which soon rises above normal. The abdomen becomes distended. In a few cases the hemorrhage between the mesenteric layers has been felt as a swelling through the abdominal wall. Visible peristalsis is rare. In Trotter's series peritonitis was present in at least 28 per cent. of the cases. When large or medium-sized vessels are occluded, death practically always results in a few days unless operation is made at an early stage.

That the clinical diagnosis of mesenteric occlusion is difficult is indicated by the circumstance that in Trotter's series it appears to have been made in only thirteen cases. The presence of endocarditis and of embolic manifestations elsewhere are valuable guides to diagnosis in cases presenting acute colicky abdominal pain, profuse bloody diarrhea, or constipation, vomiting, abdominal distention and grave constitutional disturbances. One difficulty is that the clinical picture is extremely variable, often incomplete; but if the idea that mesenteric vascular occlusion is a very uncommon condition could be forgotten, so that the possibility of its being present would be considered when the diagnosis of an acute abdominal lesion is under discussion, it no doubt would be diagnosed oftener. The cases in which operation with resection has been made appear to give 36.2 per cent. of recoveries. It would seem that if operation were made as soon as possible after the onset of acute symptoms, better results would be obtained.

THE DISTRIBUTION OF IODIN

Although iodin and products containing it have long belonged to the armamentarium of medical practice, a unique interest in the element was aroused by the discovery by Baumann, in 1895, of its presence in the thyroid gland. There has been no lack of speculation as to the significance of this and the literature is full of conflicting statements as to the possible part that iodin may play in the animal economy. With the accumulation of reliable facts regarding the distribution of iodin in nature it seems more and more probable that its appearance in special tissues, notably the thyroid, in comparatively greater abundance than elsewhere, is not a mere accident.

Undoubtedly the true biologic significance of iodin will become more and more elucidated when our knowledge of its distribution in living forms has been extended far more widely than at present. To Dr. Cameron of the University of Manitoba at Winnipeg, we owe an important contribution involving many laborious estimations of iodin in all sorts of animal and plant tissues.[1] Facts thus collected are important in indicating not only the possible sources for the commercial preparation of the element, but also the sources from which it can find its way into the animal organism. It has long been known that iodin is present in almost all sea-weeds; indeed, it was discovered in kelp by Courtois in 1811. It now appears to be an invariable constituent of all marine algae in amounts greater than 0.001 per cent. Distinct variation of iodin content can occur in the same species, growing under almost the same conditions, and in different, but closely related species. No satisfactory cause has yet been assigned to explain such differences. The marked difference between fresh-water plants and the ordinary vegetables, on the one hand, and marine algae on the other is unquestionably due to difference in the iodin content of the environment, and therefore in the diet of these plants. The differences in different species growing under similar conditions, Cameron suggests, may be associated with a specific quantitative action of the plant in retaining iodin.

---

[1] Trotter, Leslie C. B.: Embolism and Thrombosis of the Mesenteric Vessels, Cambridge, 1913.

[1] Cameron, A. T.: Contributions to the Biochemistry of Iodin. I. The Distribution of Iodin in Plant and Animal Tissues, Jour. Biol. Chem., 1914, xviii, 335.

Iodin is present in appreciable quantities in certain tissues of all marine species. Cameron remarks that as we get higher in the scale there is more differentiation (and probably less total iodin in the whole organism) until in vertebrates, and particularly in mammals, thyroid tissue alone is of consequence in connection with the storage of the element. We are reminded that where there is a circulation of iodin in the organism, other tissues will also contain minute amounts; but the smallness of the figures obtained by Cameron and others indicates that the presence of iodin in such tissues is in all probability without significance. It is less than 0.001 per cent. in all non-thyroidal tissue.

Despite the marked variations of iodin content in thyroid tissue even in individuals of the same species —variations traceable to differences in diet—the element is an invariable constituent of normal tissue of this gland. The minimal quantity appears, according to Cameron, to be about 0.01 per cent., the maximal quantity approximating 1.16 per cent. Under normal conditions the diet always contains sufficient iodin for the upkeep of a minimal amount.

Natural Selection and Functional Selection.—Of course natural selection plays its part, as it must in all cases, even in the inorganic world, and I believe that in many cases, as for example in protective resemblance and mimicry, that part has been an extremely important one. But much more important than natural selection appears to me what Baldwin has termed "Functional Selection," selection by the organism itself, out of a number of possible reactions, of just those that are required to meet any emergency. As Baldwin puts it, "It is the organism which secures from all its overproduced movements those which are adaptive and beneficial." Natural selection is here replaced by intelligent selection, for I think we must agree with Jennings that we cannot make a distinction between the higher and the lower organisms in this respect, and that all purposive reactions, or adjustments, are essentially intelligent.—Arthur Dendy, *Medical Journal of Australia.*

Current Comment

SINGEING THE HAIR

The reams of paper that are used up each month in articles in the daily papers — and weekly and monthly papers — on beauty culture is conclusive evidence that it is as natural for man to desire to beautify the person as it is "to indulge in the illusions of hope." A sound mind in a sound body suffices the serious-minded minority, but apparently the innumerable majority, if they had their way, would have a comely body and take their chances on any old kind of a mind, on the principle that it is better to be good looking than wise, because more people have sight than understanding. To decorate and beautify the body is an inborn passion; the savage does it differently from us, but when it comes to the many manipulations and remedies that are recommended for avoiding wrinkles, giving the eyebrows an aristocratic arch, coaxing the lashes to be long and languorous, making the ears pink and small or the nose straight and thin, removing a double chin or taking the core out of the Adam's apple, we have nothing on our uncivilized and supposedly more ignorant brothers. The hair in particular is the object of all mankind's cosmetic endeavors. When it comes to civilized man he is universally engaged in trying to save what he has left or regrow what he has lost. Women, with few exceptions, do not become bald, but all women, in their opinions, are threatened with that unspeakable calamity; men not only may get bald, but a large number of them are already so. And thus the popular remedies for the hair need almost a Surgeon-General's catalog. Vibratory and electrical treatments, hair tonics that feed the hair roots, as though they grew out of the scalp like broom-sedge out of an old field, neat's-foot oil and crude kerosene, massage and mange cures, all have their futile trials. Among these our particular topic now is singeing the hair. This is recommended to overcome splitting at the ends and to prevent falling of the hair, the reason for the latter being that it "closes the pores and keeps the fluid in the hair." With the long hair of a woman which has a tendency to split at the ends, it is possible that singeing the tips may be of some use; it substitutes a charred blunt end of fused horn for one tapering to a point or cut clean across. But even in cases of this sort it is less useful than greasing lightly the hair and thus supplying the fat which is lacking in such hair. For the hair of men, which is kept short, singeing is not of any use in preventing splitting; hair which is not allowed to grow to its natural length does not split, unless it has a deep-seated disturbance for which there is no such simple remedy. Of course singeing the hair-ends in order to prevent the fluid in the hair from escaping, like sap from a tree, is based on an entire misconception of the hair's structure and nutrition. The hair does not contain any more sap than a buggy whip; it is not nourished by any fluid in it, but by the blood plasma that reaches only the hair root. The hair above the skin surface is a spine of horn, which is even oiled from without, and singeing its tips has no effect whatever on either its nourishment or its growth. It is certain that singeing the hair is of no value in preventing its fall; in fact the only value the procedure has is to the zealous hairdresser who gets his little fee for doing it — unless it is worth a quarter to the seeker after hair to think he is doing something, even if he is not.

CHLORIN-BLEACHED FLOUR

Since the bleaching of flour with the oxids of nitrogen has been forbidden in the United States under the Food and Drugs Act, there are signs of the introduction of other processes intended to produce similar changes in the wheat product. In one of these chlorin is the bleaching agent employed, the anhydrous gas being diluted with an inert gas and then used to "mature and whiten" the flour. Without commenting at this time on the legal aspects of the matter, we may fairly ask whether the new process confers any advantages on the cereal which will render it superior to the ordinary unbleached patent flour. Mere appearance need not be taken into consideration here. Experiments conducted in connection with the pure food work at the Kansas State Agricultural College[1] in Manhattan have shown that although the chlorin content of untreated flour may run as high as 576 parts per million, chlorin-treated flour will contain over 600 parts per million. Chlorin-treatment increases the acidity of the flour. The gluten tests run practically alike for the bleached and unbleached flour. The baking experts report that there are no differences in loaf volume; but the bleached flour gives a loaf having an objectionable color and texture. In nearly every case the bread made from the unbleached flour graded better. Evidently the chlorin-bleaching cannot be defended on the ground that bread-making qualities of the flour are improved.

GAME, STOCK AND CITIZENS

The epidemic of foot-and-mouth disease and its effect on the packing industry and the stock yards of Chicago have been commented on widely in the daily press from various points of view. One of the most illuminating comments appears in a recent issue of the Chicago *Journal* under the heading "Live Stock Versus Quail." Taking the best available estimates of the amount of live stock contained in the state and figuring on an average value of horses at $140 a head, milk cows at $65, other cows at $50, swine at $15, sheep at $6 and mules at $150 (minimum valuations, as most will admit), the *Journal* says the total value of live stock in Illinois would be $435,276,000, for the protection of which the state legislature appropriated for the current year a total of $37,340. By way of comparison, the *Journal* quotes the appropriation for the protection of fish and game for the same time, which amounts to $151,600. The *Journal* properly characterizes such a situation as "intolerable." It says, "To spend four times as much money protecting quail, ducks and prairie chickens as we spend in caring for one of the basic industries of the state is sheer communal lunacy." This is true. The farmers and business men of Illinois should see to it that every cent that is necessary to protect the live stock of the state is provided, no matter what economies may be necessary in other directions. But, if such appropriations are justified for the protection of the lives and health of animals, how much should be appropriated to protect the lives and health of the men, women and children of the state? Certainly more than for fish, game and live stock. Yet the appropriation for the protection of the 5,638,591 men, women and children in the state was for 1914 only $120,000, $30,000 less than was appropriated for the protection of fish and game. Are the lives of its citizens of less value to Illinois than the preservation of its quail and bass?

VENOUS BLOOD-PRESSURE

Until quite recently it has been generally assumed that venous blood-pressure passively responds to changes in the peripheral resistance within the circulation and that it rises and falls inversely to the pressure in the arteries. There is now a growing belief, supported in part by experiments on both animals and man, that the pressure in the venous system may be dominated by a special nervous mechanism. We cannot review the entire story of this chapter of the physiology of the circulation which is still far from being presented in its final form. One apparent earlier obstacle to the hypothesis of a "venomotor" nervous mechanism has been in part met by the now well-established demonstration that the venous system is actually supplied with motor nerves. Only recently it has been shown that the veins may respond to epinephrin with constriction,[1] thereby furnishing one of the evidences nowadays accepted as indicative of sympathetic innervation. As a physiologist has expressed it,[2] although the evidence available at present is insufficient to establish definitely the existence of a venomotor system comparable to the vasomotor system proper, none of the evidence is against such a hypothetic nervous mechanism, and much of the data is impossible of explanation without such an assumption. It remains a fact, however, that no direct experimental proof has as yet been put forth. In distinction from the assumption that under normal conditions of life the peripheral resistance alone controls the magnitude of the venous pressure, Yandell Henderson has put forth the hypothesis that there is a venopressor mechanism which functions to maintain an optimum feeding pressure to the heart. This forms a part of his theory respecting the maintenance of the volume output of the heart.[3] The newest researches of Hooker,[2] at the Johns Hopkins Medical School, on the venous blood-pressure in man are in harmony with the existence of the hypothetic venomotor mechanism. He finds that normal venous pressure is independent of changes in peripheral arterial resistance. The capacity of a vein may vary without affecting the internal pressure. According to Hooker, the venous pressure in man exhibits a distinct diurnal rhythm, rising throughout the day from 10 cm. to 20 cm. and falling again during the night. The normal venous pressure varies very considerably, averaging in the day time and under usual conditions about 15 cm. of water; in sleep, at night, it may fall to 7 or 8 cm. The study of venous pressure in man has been comparatively neglected in the past. With a renewal of interest in its problems we may look forward to some valuable contributions to the knowledge of the circulation.

---

[1] Utt, C. A. A.: Some Characteristics of Chlorine-Bleached Flour, Jour. Industrial and Engineering Chem., 1914, vi, 908.

[1] Gunn and Chavasse: Proc. Roy. Soc. London, 1913, B, lxxxvi, 192.

[2] Hooker, D. R.: Observations on the Venous Blood-Pressure in Man, Am. Jour. Physiol., 1914, xxxv, 73.

[3] Henderson, Y., and Barringer, T. B.: Am. Jour. Physiol., 1913, xxxi, 352

THE COST OF TUBERCULOSIS AND TYPHOID

Estimates regarding the loss caused by preventable diseases are always interesting, although necessarily general. The smaller the area affected, the more accurate are the figures apt to be. Prof. Irving Fisher's estimate, in his report on national vitality, of the economic loss for the entire country at one and one-half billions a year is familiar to students of public health conditions. An estimate recently issued by the Minnesota State Board of Health shows the economic loss from death from typhoid fever in Minnesota in the last six years to be $21,958,940, while the deaths from tuberculosis are six times as great and the loss three times as great as that from typhoid, or $66,583,320, making a total loss from the two diseases alone of $88,542,260 for six years, or an annual loss of $14,757,043. In making this estimate the following economic values were used in computing the financial loss from deaths: professional business men and farmers, $500; skilled laborers, $300; unskilled laborers and domestics, $200; married women, $200; children under 15 years of age, $100. These valuations are conservative and should represent the minimum rather than the maximum loss.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

ARKANSAS

Change in State Hospital Head.—Dr. James L. Greene has resigned as superintendent of the State Hospital for Nervous Diseases, Little Rock, and has been succeeded by Dr. Frank B. Young, Springdale, secretary of the State Board of Health, who will take charge of the institution November 30.

Free Clinic Established.—The first of the semi-weekly series of clinical lectures and examinations was held October 23, in the laboratory of the University of Arkansas, Little Rock. The clinic is maintained by the Pulaski County Anti-Tuberculosis Society. On Tuesday morning, white patients will be seen and on Friday morning negro patients will receive care.

Hospital Opened.—The Leo N. Levi Memorial Hospital, Hot Springs, made possible by the generosity of the late Leo N. Levi, was opened for the inspection of the public, November 1. The medical board of the institution is composed of Dr. William V. Laws, chairman; Dr. William H. Deaderick, secretary; and Drs. James C. Minor, Orvis E. Biggs and Samuel D. Weil.

New Medical Society Organized.—The South Nevada Medical Society composed of physicians residing in the southern portion of the county and the Nevada County Medical Society whose membership is made up of physicians residing in the northern portion of the county, met in Prescott, October 20, and perfected an organization to be known as the Nevada County Medical Society.——Dr. Thomas J. Mendenhall, Rosston, was elected president and Dr. William M. Garner, Bodcaw, secretary.

CONNECTICUT

Personal.—Dr. Harry St. John Williams has resigned as assistant superintendent of the Undercliffe Sanatorium, Meriden, to become superintendent of the Samuel L. Towne Memorial Hospital, Poughkeepsie, N. Y. Dr. Williams has been succeeded by Dr. Edward J. Degman, Southington.

The Brady Laboratory.—Plans are practically completed for the construction of the Anthony N. Brady Memorial Laboratory of the Yale Medical School. The laboratory and administration building will be erected early in the spring of 1915. The plans call for a three-story and basement building.

Tuberculosis Commissioner Appreciated.—The Bridgeport Employees Tuberculosis Relief Association of Bridgeport has presented John F. Gunshanan, Hartford, former tuberculosis commissioner of Connecticut, with a set of handsomely engrossed resolutions appropriately framed and setting forth the appreciation of the services of Mr. Gunshanan to the organization.

FLORIDA

New Board Member.—Dr. James Burnie Griffin, St. Augustine, has been appointed a member of the State Board of Homeopathic Medical Examiners, succeeding the late Dr. Henry R. Stout, Jacksonville.

Open Meeting of Medical Society.—On November 24, the Escambia County Medical Society held a public session at which the subjects for discussion were bubonic plague, mosquitoes, uses of the state laboratory, tuberculosis, medical inspection in schools and the cancer problem.

ILLINOIS

Personal.—Dr. Pierce Tyrrell, the oldest practitioner of Elgin, is reported to be critically ill.——Dr. George D. Hauberg, Moline, has been appointed official deputy coroner of Rock Island County.

New Tuberculosis Hospital.—A hospital to be used exclusively for tuberculosis patients is to be erected at Collinsville by Dr. Moses W. Harrison, who now conducts a private hospital and tuberculosis colony at that place.——The city commission of Danville has inspected a 2½-acre tract at that place with the view to its purchase as a site for its municipal tuberculosis sanatorium.

Proposed Buildings for Epileptic Colony.—Plans for the buildings for the State Colony for Epileptics, Dixon, have been prepared and bids for their construction have been asked for. The buildings consist of an administration building with three wings; dining halls and a service kitchen and a dormitory building to accommodate 52 persons. The dormitory cottages are to be built in groups of four around the main buildings.

Chicago

Red Cross Christmas Seals.—The sale of Red Cross seals opens in Chicago at stores, theaters, public buildings, etc., Monday, November 30. Each seal costs one cent. Remittances may be sent direct to the Chicago Tuberculosis Institute, Room 1212, Hartford Building, 8 South Dearborn Street.

Chicago Hall of Fame.—*A hall of fame* to commemorate the achievements of the citizens of Chicago is proposed as an adjunct to the sunken gardens which the city will place in Grant Park. The request of the Chicago Medical Society for permission to erect a $25,000 memorial to Dr. Nicholas Senn is believed to have led to this suggestion.

Health Department to Open School.—The Chicago School of Sanitary Instruction is soon to be opened by the health department. A course of instruction will be given to superintendents of milk plants consisting of lectures and demonstrations on the general principles of milk hygiene. All new employees of the health department will be obliged to take a six months' course of training. Students of medical schools in Chicago will be given instructions in public health work during the winter. In connection with the school the health department will supply speakers on health work to clubs and other organizations.

INDIANA

New Dispensary.—A free medical dispensary was opened at the Campbell Settlement House, Gary, November 16. The dispensary is open each afternoon from 1 to 2 o'clock.

Fatal Epidemic Among Rabbits.—A disease said to have caused the death of thousands of rabbits near Vevay, Switzerland County, is being investigated by the chief food inspector of Cincinnati. It is said that many shipments of rabbits have been made to the markets of Cincinnati and other cities since the outbreak of the epidemic.

Legal Question Delays Bond Issue.—An agreement by the Marion County Council, November 12, to authorize a bond issue of $80,000, the proceeds to be applied to a new county tuberculosis sanatorium, has been deferred on account of a legal question as to the date on which the council which has had charge of the appropriations and bond authorization, was succeeded by the new city council.

Personal.—Dr. John W. Sluss, superintendent of the Indianapolis City Hospital, has resigned and has been succeeded by Dr. Thomas L. Sullivan, Jr.——Dr. Raymond H. Stinger, Broad Ripple, has been appointed a member of the staff of the Southeastern Hospital for the Insane, Madison.——Dr. A. Golding Chittick, Frankfort, has been recommissioned as Captain, M. C., Ind., N. G., and reassigned to the command of Field Hospital No. 1, Frankfort.——Dr. Richard A. Poole, Indianapolis, has been elected coroner of Marion County.——The office and residence of Dr. Edwin L. Sigmon, New Albany, was destroyed by fire, November 6.——A reception was given by Dr. Anna I. McKamy, New Albany, November 5, to the members of the Floyd County Medical Association in celebration of the opening of her new hospital for women.

IOWA

Trichina.—An appeal to the State Board of Health for aid has been made from New Liberty, Scott County, where thirty-five cases of trichina are reported.

Publication Office Changed.—The publication office of the *Iowa Medical Journal*, the official organ of the Iowa State Medical Society, is to be changed from Washington to Des Moines. Dr. David S. Fairchild, Clinton, is editor of the journal.

Health Exhibit Opened.—Dr. Guilford H. Sumner, secretary of the State Board of Health of Des Moines, opened the state health exhibit in that city, November 5. The exhibit includes the material which was secured and exhibited at the state fair in August. A lecture is delivered each evening by Prof. A. E. Kepford, state lecturer on tuberculosis.

LOUISIANA

Pediatrician Wins Suit.—In a recent suit tried at Shreveport, in which Dr. C. Pearl Munday claimed a fee of $1,000 for medical service rendered as a pediatrician to two infants and in which a counter charge of malpractice was made, the jury returned a verdict in favor of the physician for $665 and costs.

Personal.—Dr. Charles C. Bass, New Orleans, winner of the Southern Medical Association medal for scientific research, was awarded the medal for a third time at the annual meeting in Richmond, Va., November 12.——Dr. J. George Dempsey, New Orleans, has been nominated for president and Dr. George F. Patton, New Orleans, for secretary of the Louisiana Anti-Tuberculosis League.

MARYLAND

Personal.—Dr. Robert P. Bay, Baltimore, has been appointed chief medical examiner of the state industrial accident commission. To date 353 accidents have been reported to the commission since the workmen's compensation law went into effect on November 1.——Dr. Clapham P. King, Annapolis, has sailed with a Red Cross unit on the steamer *Finland* for duty in Servia.

Baltimore

Portrait Presented to Faculty.—A life-size protrait of Dr. Samuel Claggett Chew, dean of Baltimore physicians, former president of the Medical and Chirurgical Faculty of Maryland, member of the board of regents of the Maryland University for more than forty years, and one of the best known medical men in the country, was presented to the faculty November 19, by the medical profession of Maryland. The presentation was made by Dr. Charles W. Mitchell, who spoke of Dr. Chew, the teacher, and Dr. William S. Thayer, who told of Dr. Chew, the physician. Dr. Randolph Winslow, president of the faculty, accepted the portrait.

Health Work at Stake.—A cut of $135,000 has already been made in Dr. Nathan R. Gorter's estimate to the Board of Estimates for the annual appropriation for the City Health Department. The board eliminated $50,000 for a modern hospital building at Quarantine and $85,000 for improvements the Commissioner of Health considered necessary at Sydenham, the municipal hospital for minor infectious diseases. That the department may be put on a more effective basis next year, Dr. Gorter has asked for twenty-five additional employees, increasing his salary account by $9,250. He has also asked for an increase of $10,680 in his expense account. These items have not been passed on definitely by the Board of Estimates, but the statement is made at the city hall that they will probably be reduced.

Applicants Turned Away.—The number of applicants for admission to Johns Hopkins University Medical Department was much larger at the beginning of the present session than previously. More students were turned away than were accepted—not on account of their lack of technical entrance qualifications, but because of a lack of room. The enrolment of students is limited to ninety in each class.——In order that the best qualified students may be chosen, no applicants for admission are accepted after July 1 of each year, and all selections are made between that date and July 15. In this selection the college officials are guided by (a) the student's grades in the scientific branches at college; (b) a personal letter from one of the science teachers, setting forth the student's fitness to study medicine; and (c) the general character of the institution in which the student obtained his preliminary collegiate training.

MICHIGAN

Sanatorium Notes.—The opening exercises of the new Anna T. Dodge Children's Building of the Municipal Sanatorium, Detroit, will be held October 28 and 29, simultaneously with the celebration of tuberculosis day.——The State Sanatorium, Howell, will ask the legislature for an appropriation of $55,000 for maintenance during the next biennium; $15,000 for an infirmary and $12,000 for a children's pavilion. During the last year 376 patients were admitted for treatment and in more than 75 per cent. improvement took place.——The committee on ways and means of the Wayne County Sanatorium, Eloise, has voted to build an addition to the institution to cost $130,000.——At the annual meeting of the Michigan Association for the Prevention and Relief of Tuberculosis, at Muskegon last month, Dr. Arthur F. Fischer, Hancock, was elected president; Miss Carol F. Walton, Ann Arbor, secretary, and Dr. Henry J. Hartz, Detroit, treasurer; Drs. Walter H. Sawyer, Hillsdale; John H. Kellogg, Battle Creek; Edward T. Abrams, Hancock; Robert B. Harkness, Houghton, and Aldred S. Warthin, Ann Arbor, were elected directors, and Drs. Herman Ostrander, Kalamazoo; Collins H. Johnston, Grand Rapids; Victor C. Vaughan, Ann Arbor, and John H. Kellogg, Battle Creek, were elected medical members of the executive committee.

MINNESOTA

Sanatorium Notes.—Blue Earth County has voted to build a tuberculosis sanatorium.——Lac Qui Parle County has voted to join with Yellow Medicine, Chippewa and Renville counties to build a joint sanatorium.——Grant and Poke counties have voted to unite with Stevens and Douglas counties to build a sanatorium.——About thirty-five counties in the state will build sanatoriums within the next year.

County Tuberculosis Sanatoriums Authorized.—At the general election, November 3, four counties, Grant, Douglas, Lac Qui Parle and Blue Earth, voted to establish county tuberculosis sanatoriums. The legislature will be asked to make appropriations, in accordance with the county sanatorium law, for half the cost of construction and half the maintenance of patients unable to pay. There are now thirty-five counties which have taken action for county tuberculosis sanatoriums.

Health Week.—The program of the Minnesota Public Health Association for Health Week beginning with Tuberculosis Sunday, November 29, is as follows: Tuberculosis Sunday, November 29, with the suggestion that sermons on tuberculosis be preached in all churches, with union services to be held wherever they can be arranged and addresses be made by physicians or tuberculosis specialists wherever possible. The collections should go to local church or community antituberculosis work.——Measles Monday, November 30, to show the prevalence of measles, schoolchildren are asked to form "M's" and "O's" about 3 inches square, the "M" to be worn by those who have had measles and the "O" by those who have escaped.——Typhoid Tuesday, December 1, is to be devoted to the investigation of the water supply.——Whooping-Cough Wednesday, December 2, is to be devoted to showing the prevalence of whooping-cough. All schoolchildren who have had the whooping-cough will wear a "W" badge and all who have escaped an "O" badge. ——Children's Thursday, December 3, should be devoted by all mothers and fathers to a consideration of the sanitary condition of the dairies from which their milk is obtained. ——Fly-Day Friday, December 4, should be devoted to render houses and outhouses fly proof.——The week closes with Seal Day Saturday, December 5, and an especial effort is to be made on this day to sell Red Cross Christmas Seals.

NEW YORK

County Sanatorium Approved.—A proposition for a county tuberculosis sanatorium for Lewis County was carried at the November election by a majority of 700.

Jamestown Tests Milk Supply.—The secretary of the board of health of Jamestown has secured the equipment for a municipal bacteriological laboratory to meet the requirements of the new sanitary code.

Society Honors Its Dead.—The Albany County Medical Society held its annual memorial service October 30, in honor of the deceased members of the last year, Drs. Charles H. Smith, Daniel V. O'Leary and John V. Hennessy. Appropriate resolutions were adopted and fitting addresses were made by several members of the society.

County Tuberculosis Hospitals.—At the recent election three additional counties, Chenango, Lewis and Suffolk, voted to establish tuberculosis hospitals. There are now twenty-nine counties in the state which either have or have planned for such hospitals. It is also reported that Nassau County, L. I., finds that the vote in favor of a tuberculosis hospital near Hempstead, L. I., must stand in spite of the objections of residents in that neighborhood.

Alarming Spread of Foot-and-Mouth Disease.—While it is reported from Albany that the epidemic of foot-and-mouth disease through the upper part of the state is well under control, the state department of agriculture is alarmed over the spread of the disease on Long Island. The epidemic has attacked four additional herds of dairy cattle aggregating 733 milch cows. The state department of agriculture has appealed to the federal bureau of agriculture for additional help and a special appropriation will have to be made by the state to meet the emergency.

Reduction of Summer Infant Death-Rate Through the Establishment of Infant Welfare Stations.—The New York State Department of Health announces that the infant death-rate during the past summer, for the city of New York, fell to 100 (as against 112 in 1913) and for the rest of the state exclusive of the city, to 119 (as against 143 last year). The department attributes part of the reduction to the mild summer but remarks that it is probable that much of the improvement is due to the infant welfare exhibits and stations which were established during the past summer.

New York City

Milk Pasteurization Ordered.—The health department issued an order on November 13, that all milk hereafter sold in New York City must be pasteurized. The order is based principally on the epidemic of foot-and-mouth disease.

Dr. Byrne Still Lives.—In The Journal of September 19, the notice of the death of Dr. Joseph Henry Byrne, New York City, appeared. This report was published on information given by our local correspondent for New York City. Under date of November 13, Dr. Byrne writes us that he is "very much alive and capable of kicking strenuously," at which we, together with Dr. Byrne's many friends, rejoice.

Personal.—Dr. Haven Emerson, sanitary superintendent, and Dr. William H. Park, general director of laboratories in the New York Health Department, have received a raise of salary from $5,000 to $6,000 a year on the condition that they give their full time to the work, relinquishing their private practice and their college work in Columbia University.

Montefiore Home Report.—The annual meeting of the directors of the Montefiore Home and Hospital for Chronic Diseases was held November 8, when a gift of $25,000 was announced. The income of this fund is to be used for juvenile patients. During the past year the institution cared for 630 patients at a cost of $265,050 and there was a deficiency of $15,000.

Academy Celebrates Anniversary.—The anniversary meeting of the New York Academy of Medicine was held on the evening of November 19. Hon. George McAneny, president of the board of aldermen, made the address. It being the custom of the academy to emphasize its interest in public welfare on these occasions the speaker chose as his subject, "Some of the Relations of the Profession of Medicine to Municipal Government." The meeting was followed by a reception and a collation.

Two Red Cross Units for Servia.—Two more Red Cross units sailed on the *Finland*, November 21, for services in Servia. The directors of the units are Dr. Ethan Flagg Butler and Dr. Ernest P. Magruder of Washington, D. C. The staff physicians are Drs. James F. Donnelly, S. H. Dodge, Knoxville, Tenn.; Clapham P. King, Annapolis, and Morton Lane. The company will land at the Piraeus and proceed at once to Nish via Salonika. They carry 75 tons of material for dressings and other stores.

Experiment in Physical Examination of Schoolchildren.—In accordance with a suggestion made by the committee on hygiene of the board of education an experiment is being made in the private examination of schoolchildren. Two districts have been selected and the parents given the opportunity to have their children examined by their own physician before entering school for the first time. If it is found that such examinations are made in any considerable numbers the medical inspectors will employ the additional time thus saved to the examination of children in the upper grades, and if the experiment should prove a success, the system will be extended.

Attempt to Solve the Ventilation Problem.—Arrangements have been made for a series of scientific tests on sixty or more Bronx schoolchildren with the object in view of solving the problem of ventilation in the schools. These experiments are to be conducted by the State Commission on Ventilation, of which Prof. C. E. A. Winslow is chairman. Preliminary experiments have been under way for the past nine months at City College. The new school building in which these experiments are to be conducted has two schoolrooms fitted up with every conceivable ventilating appliance, and having double ceilings, walls and floors in order to provide inlets and outlets for air at any point. There are seats for about thirty children in each room. While the commission has not yet made its official report, it is understood that it has reached some conclusions that apparently upset some fresh-air theories of long standing.

NORTH CAROLINA

New Hospital Opened.—The Winston-Salem City Hospital was opened for visitors November 4, by a reception at which the building was formally presented to the city and accepted by the mayor. The institution represents an investment of more than $100,000. On November 11 the hospital was opened to receive patients.

Sanatorium Wins Suit.—At Charlotte on November 6, the jury in the superior court, in an accident for damages brought by a woman against the Charlotte Sanitarium on account of the occurrence of nephritis said to have been due to a careless administration of ether at a minor operation six years before, rendered a verdict in favor of the sanatorium.

Personal.—Dr. James N. Gill, Weaverville, has recovered from injuries received in an automobile accident near Asheville early this month.——The residence of Dr. L. S. Blade, Elizabeth City, was damaged by fire November 6.——Dr. Robert H. Bradford, Burgaw, who was operated on for appendicitis at the James Walker Memorial Hospital, Wilmington, is reported to be convalescent.

County Sanatorium Wanted.—An appeal has been made to the commissioners of Guilford County, Greensboro, November 4, to provide a hospital for incipient tuberculosis. The commissioners appointed a committee composed of representatives from the County Health Board and the County Medical Society to look over the situation and recommend what course should be adopted.

State Hospital Vindication.—The supreme court of the state has handed down a decision confirming the judgment of the lower courts in the case of Salisbury vs. The Hospital for the Insane, Raleigh. The evidence shows that a former governor had appointed the plaintiff in the action, a director of the State Hospital by an interim appointment and at the meeting of the legislature the next governor designated another individual to fill the vacancy for which the appointment had been made, but not confirmed by the Senate. The court sustained the appointment of the official director, taking the position that the governor, at the time of the initial appointment, could nominate only for an interval term pending the session of the Senate which would confirm or refuse to confirm the appointment.

OHIO

Union Meeting of District Societies.—At the union meeting of the First and Second Councilor Districts Medical Society held in Dayton, clinics were held at St. Elizabeth, Miami Valley and the Dayton State hospitals. Eminent specialists from Chicago, Cincinnati and Indianapolis conducted the clinics.

State Health Board Member Dead.—Mr. Josiah L. Hartzell, the oldest member of the State Board of Health, who was made a member in 1893, and was twice its president; one of the earliest advocates of modern sanitation in Ohio; formerly editor of *The Repository*; a member of the American Public Health Association, and one of the trustees of the Ohio Historical and Archeological Society; died at his home in Columbus, November 11, aged 81.

Personal.—Physicians of VanWert County attended a banquet in VanWert, November 12, in honor of Dr. J. Arthur Hines who celebrated his seventy-second birthday anniversary and the fiftieth anniversary of his initiation into practice. Dr. Hines was presented with a gold headed cane suitably engraved.——Dr. Louis L. Syman, Springfield, has been reelected superintendent of the medical department of the Detroit, Toledo and Ironton Railway.

OKLAHOMA

Insane Patients Transferred.—The State Insane Asylum at Norman recently transferred 250 inmates to the new State Hospital at Vinita. More than 800 patients still remain at Norman.

Foot-and-Mouth Disease.—Dr. John C. Mahr, Shawnee, state commissioner of health, has issued a warning regarding the possibility of the spread of foot-and-mouth disease to human beings.

Free Pasteur Treatment.—The state health commissioner, John C. Mahr, Shawnee, announces that he is prepared to furnish free, from health officers or physicians of the state, the Pasteur treatment for hydrophobia to all who are unable to pay for the treatment.

Personal.—Dr. James A. Young, Oklahoma, who fractured his leg recently, is reported to be convalescent.——The house of Dr. John H. Baldwin, Calera, was destroyed by fire recently.——Dr. Harry E. Breese, Henryetta, who has been ill with malaria and complications, has recovered.——Dr. James A. Rutledge, Woodville, recently fractured his leg while playing foot-ball.——Dr. Herman E. Yazel, Oklahoma City, has sailed for Europe in the Red Cross service.

TEXAS

New Texas Surgical Organization.—At the annual meeting of the Medical Association of the Southwest at Galveston recently a new society to be known as the Texas Surgical Association, was organized. The members of the executive committee are Drs. Joseph H. Reuss, Cuero; John T. Moore, Houston; John B. Smoot, Dallas; Frank Paschal, San Antonio; William B. Thorning, Houston; Joseph D. Becton, Greenville, and James E. Thompson, Galveston.

Report of State Hookworm Commission.—Dr. Morris H. Boerner, Austin, assistant state health officer and director of the state hookworm commission, in his quarterly report says that the field work during July, August and September in Burleson, Milan, Bell, Anderson and Nacogdoches counties covered over 4,800 square miles and reached directly and indirectly more than 100,000 persons. Over 6,000 persons were examined for hookworm of whom 1,225, or 19 per cent., were found to be infected and given free treatment. The disease was found to be much more prevalent among children than among adults. Over 3,000 children were examined and 960, or 31 per cent., were found infected.

GENERAL

Canal Zone Physician Resigns.—Dr. Walter G. F. Baetz has resigned as a member of the medical staff of the Ancon Hospital, Canal Zone, and will practice in New York City.

Life Insurance Medical Directors to Meet.—The semiannual meeting of the medical section of the American Life Convention will be held at French Lick Springs, Ind., March 3-5, 1915. Dr. Frank W. Foxworthy is chairman of the program committee.

Southern Surgeons and Gynecologists to Meet.—The twenty-seventh annual meeting of the Southern Surgical and Gynecological Association will be held in Asheville, N. C., December 15 to 17, with headquarters at Grove Park Inn. Dr. John Wesley Long, Greensboro, is president of the association.

Southern Medical Women Elect Officers.—The second annual session of the Association of Medical Women was held in Richmond, Va., November 10, and the following officers were elected: president, Dr. Mary E. Lapham, Highlands, N. C.; vice-president, Dr. Mary A. Parsons, Washington, D. C.; secretary, Dr. L. Rosa H. Gantt, Spartanburg, S. C.

Orthopedic Club to Meet.—The next meeting of the Central States Orthopedic Club will be held in Detroit and Ann Arbor, Mich., December 28 and 29, under the presidency of Dr. Albert H. Freiberg, Cincinnati. The first day's meeting will be held in Detroit and in the evening the club will be the guest of the Detroit Medical Society. The second morning will be spent in the clinics and laboratories of the University of Michigan, Ann Arbor.

Good Health in the Army.—In the annual report of Surgeon-General William C. Gorgas it is announced that the hospital rate for the year was the lowest on record, that typhoid fever has been virtually stamped out, that there has been less alcoholism than at any time in the history of the Army and that in spite of the large number of men on duty in the tropics, the malarial fever rate is the lowest since 1898. Surgeon-General Gorgas especially commended the high hygienic standards maintained in camps.

Measures Against Importation of Disease Into This Country at the Close of the War.—The United States Public Health Service is making preparations to prevent the entrance of disease into this country at the close of the European war. American consuls in Europe have been instructed to report the appearance of epidemics immediately to the health service and particularly to watch for cholera. The Public Health Service also has representatives of its own abroad watching for manifestations of disease. The closest inspection of immigrants is to be maintained.

Progress in Legislation Against Child Labor.—The tenth annual report of the National Child Labor Committee compares the laws on this subject in 1904, when the committee was organized, with those of 1914. The number of states which impose a 14-year-age limit on all factory work has increased from thirteen in 1904 to fifty-six in 1914. In the same time the number of states having an eight-hour day for older children has increased from one to eighteen. Night work was prohibited for children under 16 in 1904 in five states, and in 1914, in thirty-four states. Factory inspection was provided for in thirteen states in 1904 and in thirty-four states in 1914.

Foot-and-Mouth Disease.—The federal quarantine against the foot-and-mouth disease has been extended to New Jersey, Rhode Island, Massachusetts, New York, Ohio, Pennsylvania, Indiana, Illinois, Maryland, Michigan, Wisconsin, Delaware and Iowa. Shipments of live stock from Canada to the United States are also forbidden. There is no evidence yet of foot-and-mouth disease in Canada, but it is intended to prevent the return of infected cars which have been sent over the border. State quarantine has also been declared against states not yet under federal quarantine. Suspected cases of infection of human beings are said to have occurred in Akron and Cleveland, Ohio; Berrien County, Mich.; Providence, R. I., and Anderson, Ind. The Rockefeller Institute for Medical Research through its director, Dr. Simon Flexner, has undertaken to investigate the cause of the disease.

Southwestern Physicians Elect Officers.—At the ninth annual meeting of the Medical Association of the Southwest held in Galveston, Tex., November 10 and 11, the following officers were elected; president, Dr. Jefferson D. Griffith, Kansas City, Mo.; vice-presidents, Drs. Ernest F. Day, Arkansas City, Kan.; Thomas H. Flesher, Edmond, Okla.; Arthur E. Sweatland, Nacogdoches, Tex., and Estill D. Holland, Hot Springs, Ark.; secretary-treasurer, Dr. Fred H. Clark, El Reno, Okla. (reelected for the tenth time), and executive committee, Drs. Matthew M. Smith, Dallas, Tex.;

John H. Barnes, Enid, Okla.; Jacob G. Dorsey, Wichita, Kan.; William H. Stauffer, St. Louis, and Edward H. Martin, Hot Springs, Ark. The association approved the adoption of the *Southwestern Journal of Medicine and Surgery* as the official organ of the association. Oklahoma City was selected as the next place of meeting and the secretary was directed to extend an invitation to the state medical bodies of Colorado, New Mexico and Louisiana to affiliate with the association.

National Economic Problems to be Discussed by the Civic Federation.—Among the national problems of medical interest to be discussed by the National Civic Federation at its fifteenth annual meeting in New York City, Dec. 3 to 5, 1914, will be that of food and drugs. The committee on plan and scope for the proposed department on food and drugs will report recommendations based on answers to a questionnaire sent out to over 5,000 federal, state and municipal drug, food and public health officials as well as to manufacturers and retail dealers. The questionnaire dealt with the conditions of the sale of meat, poultry, milk, eggs, pastry, drugs, etc., and included an inquiry as to proprietary remedies and the advisability of the adoption of an official standard of drugs to be supervised by the government. Among the topics discussed in the report of the welfare department also are several which have a medical bearing such as that on industrial fatigue, relation between hours of work and output and physical examination of new employees. In connection with this department, a permanent exhibit is to be established on the thirty-fifth floor of the Metropolitan Tower.

Southern Physicians Hold Meeting.—The eighth annual meeting of the Southern Medical Association was held in Richmond, Va., November 9 to 12, under the presidency of Dr. Stuart McGuire, Richmond, and the following officers were elected: president, Dr. Oscar Dowling, Shreveport, La.; vice-presidents, Drs. Robinson C. Dorr, Batesville, Ark., and McGuire Newton, Richmond, Va.; Dr. Allen W. Freeman, Richmond, Va., chairman; Dr. James A. Hayne, Columbia, S. C., vice-chairman; and Dr. Waller S. Leathers, University, Miss., secretary of the section of public health.——Dr. Joseph B. Greene, Ashville, N. C., chairman; Dr. Edward H. Cary, Dallas, Tex., vice-chairman, and Dr. Thomas W. Moore, Huntington, W. Va., secretary of the section on eye, ear, nose and throat.——Dr. Isidòre Cohn, New Orleans, chairman; Dr. John H. Blackburn, Bowling Green, Ky., vice-chairman, and Dr. Franklin Webb Griffith, Asheville, N. C., secretary of the section on surgery.——Dr. William H. Deaderick, Hot Springs, Ark., chairman; Dr. Charles L. Minor, Asheville, N. C., vice-chairman, and Dr. Stewart R. Roberts, Atlanta, Ga., secretary of the section on medicine. Dallas, Tex., was selected as the next place of meeting.

United States Civil-Service Examination.—The United States Civil Service Commission announces an open competitive examination for epidemiologist, for men only. From the register of eligibles resulting from this examination certification will be made to fill a vacancy in this position in the Public Health Service for service in the field, at a salary of $4,000 a year, and vacancies as they may occur in positions requiring similar qualifications, unless it is found to be in the interest of the service to fill any vacancy bv reinstatement, transfer or promotion.

The duties of the position will be to make laboratory and field investigations of the diseases of man in relation to prevalence, causation and methods of control, and to conduct field studies of public health matters. Competitors will not be assembled for examination, but will be rated on the following subjects, which will have the relative weights indicated: Education, 25; Experience and fitness, 50; Publications, 25.

Graduation with an A.B. or B.S. degree from a college or university of recognized standing, and graduation with an M.D. degree from a medical school of recognized standing, and at least five years' experience in epidemiologic research, including field studies and laboratory technic, and at least five years' public health service under federal, state or municipal authorities, are prerequisites for consideration for this position. Experience in epidemiologic research and experience in public health service may be concurrent. Applicants must have reached their twenty-fifth but not their fortieth birthday on the date of the examination. Persons who meet the requirements and desire this examination should at once apply for Forms 304 and 2095, stating the title of the examination for which the forms are desired, to the United States Civil Service Commission, Washington, D. C.

Prevention of Infant Mortality.—The fifth annual meeting of the American Association for Study and Prevention of Infant Mortality was held in Boston, November 12-14. At the close of the meeting Mr. Homer Folks of New York, who was elected a year ago, became president for 1915, succeeding Dr. J. Whitridge Williams of Baltimore, and the following officers were elected: president-elect, Dr. Samuel McC. Hamill, Philadelphia; vice-presidents, Drs. William C. Woodward, Washington, and William Palmer Lucas, San Francisco; secretary, Dr. Philip Van Ingen, New York; treasurer, Mr. Austin McLanahan, Baltimore; executive secretary, Miss Gertrude B. Knipp, Baltimore. The meeting was the largest in the history of the association. Delegates were present from eighteen states, the District of Columbia, Canada and Panama. Over 120 organizations engaged in baby-saving work are now identified with the association. Fifty-two of these were represented by delegates at the meeting. In connection with the meeting an interesting exhibit of local and national activities was held in the Boston Public Library. The selection of place and date for the 1915 meeting were left to the incoming executive committee.

The second day's session of the association was opened by the election of the following new directors: for five years, George R. Bedinger, Boston; Dr. Sara Josephine Baker, New York; Dr. Arthur B. Emmons, 2d, Boston; Dr. William W. Butterworth, New Orleans; Dr. Charles V. Chapin, Providence, R. I.; Dr. Frank S. Churchill, Chicago; Miss M. F. Etchberger, Baltimore; Dr. Charles L. Furbush, Philadelphia; Dr. Clyde E. Ford, Cleveland; Dr. Caroline Hedger, Chicago; Dr. William Palmer Lucas, San Francisco; Dr. Helen MacMurchy, Toronto; Harold McCormick, Chicago; Dr. Fred W. Schutz, Minneapolis; Dr. George M. Tuttle, St. Louis; Dr. Borden S. Veeder, St. Louis; Dr. William H. Welch, Baltimore; for four years, Dr. Howard C. Carpenter, Philadelphia; for three years, Dr. Watson S. Rankin, Raleigh, N. C., and Dr. Ernest C. Levy, Richmond, Va.; for two years, Dr. Carl L. Alsberg, Washington; for one year, Mrs. C. B. Crane, Kalamazoo, Mich.

FOREIGN

New University in Austria-Hungary.—Austria-Hungary has just founded a new university, the fifth in the empire. It is located at Presburg, in Hungary, about 40 miles east of Vienna. It was inaugurated with simple ceremonies, October 4.

Yellow Fever Suspects.—Two passengers on the steamer "*Esperanze*" from Progreso, Mex., which arrived at Havana, November 16, showed signs of yellow fever and were isolated for observation. Two cases of yellow fever are reported at Merida, Yucatan.

WAR NOTES

The American Ambulance.—The American Ambulance Society, Paris, has found it possible to convert an ordinary motor car into an ambulance at a cost of $50.

Medical Graduating Class Proceeds to the Front.—Prof. G. Reinhold is the newly elected rector of the University of Vienna, and he conferred the degrees on the graduating class in the medical department, October 2. The graduated physicians all entered the army at once. About twenty of them were already in uniform at the graduating exercises.

Hospital Ship Wrecked.—The hospital ship *Rohilla* en route from Queensferry, Firth of Forth, to Belgium for wounded, was wrecked off Whitby, October 30, with considerable loss of life. None of the medical officers or nursing sisters was lost. The crew and passengers were rescued by the ship's boats and the Whitby life boat.

Dearth of Medical Officers.—The British Expeditionary Force is said to be so short of medical officers that those they have are seriously overworked. It is suggested also that there is a lack of medical supplies. The demand for motor ambulances is very great and the London *Times* has raised a fund of nearly $2,000,000 to supply this demand.

War Surgery.—In the *Journal des Débats* appears an article by Henry de Varigny dealing with the subject of amputations in the present war. During the first month of surgical work at the Vichy Hospital more than 600 operations were performed, a very small number in comparison with the number of wounded, which was not less than 6,000. Of these 600 operations in the past month of war service, not ten amputations were recorded and the majority of these were minor.

Return on the Red Cross Ship.—The steamer *Red Cross,* which was sent to Europe by the American National Red Cross, with surgeons, nurses and medical supplies, returned to New York October 24. Rear Admiral Aaron Ward, U. S. N., who has charge of the work of distribution of supplies, laid special stress on the hospitality of the Hollanders. The stevedores at Amsterdam refused pay for their services; the Rotterdam Dry Dock Company declined payment for engine repairs and the Holland Railway Company transported four Red Cross units and more than 100 tons of supplies to the German frontier free of charge. The *Red Cross* brought home 150 refugees from Europe.

Work of the British Red Cross.—The pressure on the British Red Cross organization was exceedingly severe during the first week of November, during which nearly 10,000 soldiers were removed from trains to hospitals. The Royal Army Medical Corps handled the emergency admirably and the service was well equipped in every particular. The organization is rendering considerable help to the French, a large number of surgeons and dressers have been sent to Rennes and Calais to work among the French wounded. A body of surgeons was also sent to Dunkirk to look after the Belgian wounded. The first British Red Cross Hospital is now ready with a capacity of about 500 and motor ambulances are being placed in the field as rapidly as possible.

Deaths in the Profession at the Front.—Austria reports the death at the front of Drs. F. Haritz, Vienna; F. Mayer, A. Selinger, B. Mund; N. Ruczka and L. Stern.——The Vienna Medical Society has lost at the front three of the younger members, A. Jungmann, L. Grünfeld and E. Venus.——In Germany the list of medical officers killed on the firing line includes R. Gottschalk, A. Bertheim, the chemist collaborator of P. Ehrlich, killed by accident on his way to the front; L. Kirchheim, assistant at the medical clinic at Marburg, aged 38; F. Meyer-Betz, and G. Herrenschneider. The *Münchener med. Wochenschrift* has published up to and including the issue for October 20, the names and titles of sixty-four physicians and medical officers and of nine last-year medical students, a total of seventy-three, besides several missing.

Red Cross Hospital Train.—A hospital train, said to be the most complete and efficient moving hospital ever constructed, has been given by the Hamburg Red Cross and is now in operation on the western battle front. The train has 36 cars, including 29 for the transportation of the seriously wounded, and 278 beds; a magazine car; a baggage car; a supply car; a physicians' car; an apothecary car; and a car for the hospital corps. Beds with spring mattresses and furnished with laundered linen and fresh blankets are supplied for the sick. The cars are fitted with every conceivable sanitary convenience and the beds are so constructed that they may be used as stretchers. One-half of the physicians' car is divided into compartments for the use of the physicians, while the other half contains a dining and consultation room.

The Wounded Servians.—A European journal gives an alleged extract from the diary of a dead German officer regarding the wounded Servians: "When one leaves the organized hospitals and wends one's way through the crowds of wounded who block the pavements and enters a lower-class café, the appalling tragedy of it all fills even the spectator with a sense of hopelessness. There, like cattle on their bed of straw, lie sufferers from all manner of hurts. They remain mute and uncomplaining, just as they have been dropped down from the incoming oxen transports. Their wounds—3, 4 or 5 days old—have yet received no attention save the primitive first aid of the battle-field. Blood poisoning is setting in; limbs that prompt dressing would have saved are fast becoming victims for the surgeon's knife. Most of them know the risk they run, for this is their third war—often, too, their third wound—in two short years. Yet the doctors cannot come, because every man of them is already doing more than human energy allows. It is a heart-rending sight to look down on this helpless mass and to realize that many of them have been sentenced to painful death for mere lack of primitive medical attention."

Amateur Nursing.—The *Deutsche med. Wochenschrift* says that the physicians and surgeons at the German front are grateful indeed for the thorough sifting process applied by the authorities to the crowds of women who volunteer to nurse the wounded and sick. The medical staff of a hospital is never very enthusiastic over "dilettante nurses." One volunteer nurse complained recently that the night service was too long; she thought six hours was long enough. Another was distressed because the day shift went on duty at 7; she was not used to getting up so early. Another did not want to have anything to do with tuberculous patients and she had to be transferred to the quarters of the wounded and her chum with her, as they would not be parted. Amateur nurses have such a preference for the care of the wounded that the Red Cross now will not accept them unless they agree to tend the sick with internal diseases as well as the wounded at need. These recent happenings, it is said, confirm the wisdom of the authorities in permitting scarcely any but trained nurses to be sent to the front. Extensive arrangements have now been made, however, to train nurses and attendants. All the public hospitals, the Red Cross and numerous other institutions are making every effort to train large numbers of nurses. The municipal sterilizing plants are sterilizing dressings and clothing donated for points outside. The *Medizinische Klinik* comments: "Thus the city of Berlin has shown in every way its preparedness for war (*Kriegsbereitschaft*)."

German and Austrian Physicians Decorated for Gallantry at the Front.—Austria reports that Dr. J. Winter has been knighted for distinguished service in the field and in the prevention of epidemics; the German Kaiser has also conferred a decoration on him. Other Austrian orders have been conferred on G. Arnstein, K. Wolfgang, R. Pollak, E. Bayer, F. Baruch, A. Lerch, V. Eisenmenger and K. Kaunitz. Official recognition for heorism on the firing line mentions the names of Drs. E. Hochmann, A. Polacco and F. Fischer in the latest published list. In Germany the iron cross awarded for special acts of gallantry has been given to 120 members of the profession, including nineteen professors who went from the lecture room to the front. Others besides those already mentioned in these columns are von Angerer, C. Engel, Graser, Riese, Schlayer, Thiemich, Ullmann, Wullstein, Müller of Munich, Lange, Benario, Berghaus, Kausch, Loening, Rumpel, Lennhoff, Stiertz, Küttner and Wachsen. The *Medizinische Klinik*, November 1, adds several more names to the list, among them that of T. v. Olshausen, a member of its editorial staff. This exchange is published by a syndicate of forty-eight physicians and nearly all are at the front, and most of them are already recipients of the iron cross. Bier is in this, and also is one of the group of fifteen that publish the *Münchener med. Wochenschrift*. Most of these also are on the list of those to whom the iron cross has been presented.

Transportation of the German Wounded.—The *Deutsche med. Wochenschrift*, October 15, publishes an official communication from the state war department deprecating suggestions from others in regard to the transportation of the wounded. No matter how well meant the suggestions, it says, if they are impractical or conditions forbid their being carried into effect, they merely render the public uneasy to no purpose. The communication is a reply to an article by Czerny in a previous issue in which he made a few suggestions, and his words were widely copied in the daily papers. The communication from the war department states further that theoretically it is in complete accord with most of Czerny's remarks, but all who have been out on the firing line know that there theory and actual practice—as so often happens in war—are worlds apart. "During the first of the campaign the army pushed forward so rapidly that no attempt was made to have the hospital organization keep up with it. The wounded were rushed back from the danger zone by thousands and thousands, and as the railroads had been destroyed, this was a difficult task, but the wounded all preferred to be sent back rather than to be left on the firing line. The hospital trains could not get down to the front, as the tracks were clogged with trains loaded with troops and supplies, so that there were no means of transportation for the wounded except freight trains. More than 120 trains were sent out, each carrying from 300 to 500 wounded. But all were well bandaged and able to bear the transportation. In order to accomplish this, the medical staff had to work with the utmost devotion at high pressure day and night. Only those not seriously wounded were sent back by train. The medical staff made strict provision for a medical force and attendants to accompany each train. If such was lacking at any point those who had the matter in charge were held to strict account. At present there are fifty hospital trains running, with practically clear passage from the front to the home zone.

"Each is fully equipped with physicians and nurses and everything needed for the transportation and care of the wounded, kitchen car, operating room, etc. If the tracks should again become congested with other trains—which is not impossible—then the freight trains will have to be utilized again, but provision has been made so that at many stations, especially those on the frontier, there are already ample supplies of blankets, mattresses, heaters, etc., with medical and other attendants, so that each train can be fitted out properly. The suggestion that one wall of the freight car be taken out is not practicable."

LONDON LETTER

London, Nov. 6, 1914.

Treatment of the Wounded

Though most of the wounds received in the war are slight and recovery from them takes place rapidly, some are of great severity and attended by complications, of which tetanus and emphysematous gangrene are the most important. The bacteriologic conditions are peculiar and novel to our bacteriologists working at the front in northern France. In England wound infection is almost exclusively due to staphylococci and streptococci. In France the infecting organisms usually are of the anaerobic class, such as the tetanus bacillus, the *Bacillus aerogenes capsulatus* and the bacillus of malignant edema. Only after a considerable time and sometimes not at all does ordinary pus form. The reason of the difference is that the soil of France and Belgium is cultivated to a degree unknown in England, what is known as "intensive cultivation." It has been thoroughly manured for many years and therefore teems with the anaerobic organisms which inhabit intestines of domestic animals. The soldiers standing in the trenches for hours get their clothing and hands caked with mud. A missile which hits them carries in with it these anaerobes.

The infections induced are serious and frequently fatal. A great improvement has been made in the transportation of wounded from the front. The time now occupied is much shorter and instead of mere trucks, thoroughly equipped ambulance trains are used. Each is provided with a staff of not fewer than three surgeons, four women nurses, and a number of orderlies. Everything necessary for the changing of dressings, and even for the performance of an operation by running the train into a siding, is provided. The feeding of the patients during transit has not been forgotten; there are one or more kitchens on each train. Now that the British army instead of facing north from the east of Paris has been moved into the north of France on the Belgian frontier and faces east, the distance from England is much shortened and the French seaports on the English Channel have become veritable hospital towns. Large buildings such as casinos have been converted into hospitals and in consequence of their good lighting and ventilation answer admirably. The hospitals have far larger professional staffs than the official regulations require, and, thanks to the system of specialization introduced in the Army Medical Corps about ten years ago, the staff of each includes at least one man who is a thoroughly skilled and experienced operating surgeon. Furthermore, of the men who have been enlisted as temporary surgeons, many have had considerable surgical experience. A good many of them are fellows of the Royal College of Surgeons of England. From these hospitals the wounded who are fit for the journey are sent home in splendidly equipped hospital ships, which are large transatlantic liners that have been converted. The bulkheads have been removed and the place of small cabins taken by large wards. The ships are well staffed with surgeons, nurses and orderlies, and the passage, which takes only a few hours, is accomplished without inconvenience. Many thousands of wounded are now in this country distributed in the hospitals throughout the British Isles. Mr. D'Arcy Power, surgeon to St. Bartholomew's Hospital, and lieutenant-colonel attached to the first London general hospital for the reception of the wounded, gives his impressions of the treatment in the *Lancet*. He finds that as in ordinary civil practice, the net result of the work appears to show that meddlesome surgery is generally bad surgery. Wounds need no longer be probed, drained and packed. Tempered with discretion, it is better to wait than to operate unless the patient is losing ground. Considerable experience, however, is required to decide when to wait and when to operate, because injuries which appear slight superficially may conceal conditions that demand immediate treatment. Looking to the fact that the chief infection seems to come from the patient's own skin, antiseptic surgery is preferable to aseptic methods. Dry dressings must give place to compresses and fomentations whereever possible. Iodin applications seem to be more effective than the solutions of mercuric chlorid and mercuric iodid, which have hitherto been the more generally used. The youth and health of the patients render the prognosis even of severe injuries correspondingly good and enable the surgeon to take waiting risks which might otherwise be hazardous. It is better, therefore, to err on the conservative rather than on the radical side of surgery, at any rate in the earlier stages.

THE BELGIAN WOUNDED IN ENGLAND

The advance of the Germans through Belgium led to the constant removal of the wounded from one hospital base to another. At length when driven to the sea the wounded were embarked in large numbers for England. One night some thousands were landed at Folkestone. The scene of landing was weird in the extreme. The whole town was in darkness—a military precaution adopted in the coast towns. A large hotel was prepared for their reception into which they were conveyed by physicians, medical students acting as dressers, and nurses who were hastily sent down from London. By the aid of electric torches, tripping over the flower beds of the hotel was avoided. The more seriously wounded were investigated on board the ships and sent in motor ambulances to the nearest military hospital. The rest were placed in ambulance trains and sent to various hospitals. As in the case of the British soldiers, most of the wounds were due to shells, the majority being in the upper limbs.

Dispensary for Belgian Refugees

A dispensary has been opened under the auspices of the War Refugees Committee for the medical treatment of sick Belgian refugees. The enormous influx of refugees, many of whom speak only Flemish, has rendered it necessary to organize medical relief to secure separate quarters, and to take advantage of the services of Belgian physicians who have found an asylum in this country. Arrangements have been made for a service of consultations daily, and they are now in full working order with an efficient staff of nurses of the British Red Cross. Many Belgian physicians now in London, some of whom are well-known specialists, have offered their assistance for consultation in special cases.

War the Absorbing Topic

The war, of course, is still the all-absorbing topic. It fills the newspapers almost to the entire exclusion of everything else. There is not a very great deal of special medical interest, however, forthcoming at present—apart from the scientific reports on the casualties of war which are not public property yet. Our hospitals, military, permanent and extemporized, are filling up with wounded who have been successfully transported from the area of war, but generally speaking, notwithstanding the conditions of hardship and exposure, to which from the conditions and sanguinary nature of the fighting, the wounded are exposed, often without shelter and food, for hours, sometimes even for days, it is positively remarkable how well the majority of the patients do when they get here; though now that the fighting takes place actually nearer here than to the French base and we get the cases earlier, we are getting a large proportion of more severe wounds.

Casualties and Rewards

The casualties in the medical corps continue to be heavier than in previous wars. Since my last report six officers of the Royal Army Medical Corps have been killed, one wounded and one reported missing. A particularly sad one is that of a young Australian doctor, Captain Brian Pockley, of the Australian Naval Reserve. He was the son of a prominent Sydney (N.S.W.) doctor, a former president of the Australasian Medical Congress, and graduated at the University of Sydney only this year. He was engaged with a landing party in New Guinea from an Australian warship, and finding a wounded sailor had to be sent to the rear, placed his Red Cross coat on the sailor who carried the wounded man, to indicate that he was temporarily non-combatant. While without his coat attending another wounded man he was shot by a German officer who failed to recognize his protected character in the absence of his badges. Captain Pockley was only 24 years old. As a set-off to the casualties it may be mentioned that the French Cross of the Legion of Honor has been bestowed on three officers of the Royal Army Medical Corps, Major S. L. Cummins and Captains S. E. Lewis, J. T. McEntire, H. S. Ranken, the last of whom has, unfortunately since died from his wounds.

The Indian Wounded

The care of our wounded Indian soldiers, which on account of caste, questions and other details at one time seemed likely to be a difficult problem, has now been satisfactorily settled. At Netley Hospital, a considerable number have been received under the care of Colonel Sharman, of the Indian Medical Service, who has a staff of sixty Indian orderlies. Two hotels also have now been chartered by the government at Brockenhurst near Southampton, where the wounded land and whence they are transported by motor ambulances.

These two hospitals will accommodate 2,500 patients. Huts are also to be erected in Brockenhurst Park to accommodate a further 500. Their staff will consist of eleven medical officers and thirty orderlies. The enthusiasm in England over the brilliant and devoted service rendered by the Indian troops has stirred up a grateful activity to see that they lack for nothing from the native viewpoint. A large number of Indian residents, including many of very high position, barristers, educationists, and even retired native officers of the Indian Medical Service, have offered their services to Netley as orderlies. The Indians make wonderful patients, as they are redoubtable and marvelously disciplined fighters, and their loyalty and devotion to the empire are a revelation to those who have not hitherto realized it from experience in India.

The Order of St. John of Jerusalem

The Order of St. John of Jerusalem, the English League of the Knights of Malta, has now united its forces with the British Red Cross under Director-General Arthur Sloggett. The order has 107 hospitals, containing 4,610 beds, England; also seventy-eight convalescent homes with 2,665 beds. Of these hospitals twenty-eight are in use and fourteen are now mobilizing. The order has also three hospitals of 100 beds each in France.

PARIS LETTER

PARIS, Nov. 5, 1914.

Treatment of Gangrenous Military Wounds

October 21, Dr. Quénu, professor of clinical surgery at the Faculté de médecine de Paris, read an interesting paper on this subject before the Société de chirurgie. He did not agree with Dr. Delorme (THE JOURNAL, Oct. 24, 1914, p. 1492), that the treatment of gaseous gangrene should consist of subcutaneous or subaponeurotic injections of hydrogen peroxid. Quénu believes in free opening of the wound and scrupulous disinfection of the cavities with removal of foreign bodies and loosened fragments. Hydrogen peroxid is sufficient to disinfect superficial gangrene, but for gangrene extending into the depths of muscular masses Quénu uses hot air raised to 500 or 600 C. brought into contact with the gangrenous parts by a tube. The hot air first dries and then mummifies the gangrenous surfaces. A certain amount of time is necessary for this sterilization by heat, and large specula must be used like those employed in vaginal operations to sterilize the most remote crevices without danger of carbonizing the muscles and affecting the subjacent tissues too deeply. The large vascular and nerve trunks must be avoided and the hot metal tube must not be brought into contact with the tissues, which would cling to it, producing a closed cavity in which the air-pressure might cause accidents. The end of the tube must be held at a distance of some centimeters from the tissues and the various pockets in the wound must be reached. The following days the wound is to be washed with hydrogen peroxid. The little dried scars are quickly eliminated and the bottom of the wound soon shows a healthy pink tint.

Tincture of Iodin for the Use of Soldiers

It is well known that bullet wounds immediately painted with tincture of iodin in the majority of cases are aseptic and benign. Similar painting done in ambulances where the soldiers are not received until hours or even days after having been wounded, is likely to be inefficacious. To do good, tincture of iodin must be applied at once, and this is possible only if the soldiers themselves are able to apply it. To provide the soldiers with tincture of iodin in a utilizable form without encumbering them too much is a problem which presents great practical difficulties. Iodin tablets, which are quite practicable for the ambulances, are not so for the soldiers, who have no facilities for dissolving them. A pharmacist in Paris, M. Ronert, has produced sealed ampules about 6 mm. (nearly a quarter of an inch) in diameter and about 6 or 7 cm. (2 inches) long containing tincture of iodin mixed with an iodid to make it unchangeable, and put up in a little case, taking up no more room in the pocket than a little pencil. Near one end the ampules are constricted and filed so as to break readily in the hand. Each one contains a cotton applicator and sufficient iodin to paint the wound and surrounding skin, and costs 10 centimes (about 2 cents). Dr. Pierre Delbet, professor of clinical surgery at the Faculté de médecine de Paris, has found them very practicable, and the Baroness Henri de Rothschild, who supports and directs an auxiliary hospital, has offered to give the army 200,000 ampules.

The Nobel Prizes

The Swedish scientific institutions which award the Nobel prizes have decided, in view of the European situation, to postpone the distribution of the prizes in literature, medicine, chemistry and physics until next year. The assent of the government is needed, but it is regarded as certain to be given.

The Situation of Students in the Army

The reopening of the departments of the universities has caused some families to fear that an unfair advantage would be given the students not in the army over those who are in the ranks. The minister of public instruction has just issued a promise that all measures will be taken to safeguard the rights of the students who are defending the country. Special examinations will be held, courses will be given for their benefit and competitive examinations will be adjourned until after the end of hostilities.

Privileges for Belgian Physicians

At its last session, the Académie de médecine decided to ask for Belgian physicians who have taken refuge in France the privilege of practicing their profession in the numerous localities which have been deprived of medical assistance by the general mobilization.

Thanks to the American Colony

M. Georges Lecomte, president of the Société des gens de lettres, recently presented to the American ambassador most hearty thanks for the remarkable work of the American hospital in Paris. "The admirable attentions lavished by eminent American physicians and surgeons," said M. Lecomte, "and the devotion of the whole American colony has filled our society with enthusiasm and gratitude."

Personal

Dr. Marfan, professor of therapeutics at the Faculté de médecine de Paris, has been, at his own request, appointed professor of the hygiene and clinical medicine of early infancy in the school.

The *Journal Officiel* has just published a note in which the government expresses the gratitude of the country for the noble conduct of Dr. Langlet of Reims "who has been to his fellow citizens a most noble example of coolness, courage and dignity during the occupation and bombardment of the city."

Marriages

FRED DESIRÉ LA ROCHELLE, M.D., Springfield, Mass., to Miss Elizabeth Sarah Henstridge of Hamilton, Ont., November 7.

JAMES HENRY MCKELLAR, M.D., Pasadena, Cal., to Miss Dorothy Kellogg of Altadena, Cal., at Pasadena, November 4.

WILLIAM ALEXANDER BOYD, M.D., Baltimore, to Miss Harriet M. Shannon of Washington, D. C., November 4.

STANLEY HENRY MELLEN, M.D., New York City, to Miss Hazel May White of Newark, N. J., November 4.

WALTER EDGAR STEWART, M.D., Cushing, Okla., to Miss Ethel Gill of Hattiesburg, Miss., October 18.

RICHARD DALE HOPKINSON, M.D., to Miss Florence A. Savage, both of Philadelphia, November 4.

FLETCHER LANGDON, M.D., Cincinnati, to Miss Elizabeth Inman of Winchester, Ind., November 5.

CHARLES NEWTON HAHN, M.D., Dunnegan, Mo., to Miss Clara Flint of Cliquot, Mo., October 21.

FRANK HENRY MORROW, M.D., to Miss Catheryne Rusche, both of Columbus, Neb., November 4.

ROBERT MOFFET PALMER, M.D., to Miss Olive Meyer, both of Johnstown, Pa., October 28.

HENRY F. DEICHER, M.D., to Miss Anna Kohl, both of Plymouth, Wis., November 4.

FRANKLIN BENNETT MCCARTY, M.D., to Miss Mary Bryan, both of Chicago, October 31.

WILHELM HENRY VORBAU, M.D., to Miss May Hearn, both of Athens, Ohio, October 8.

JAMES F. DEVIN, M.D., to Mrs. Fannie Conger, both of Seattle, Wash., October 29.

DAVID GORDON, M.D., to Mrs. O. D. Fields, both of Chillicothe, Mo., October 28.

Deaths

Charles Sedgwick Minot, S.D. Harvard, 1878; James Stillman professor of comparative anatomy and director of the laboratory of anatomy at Harvard Medical School since 1905; formerly lecturer on embryology; instructor in oro-pathology and surgery; instructor and assistant professor and professor on histology and embryology in his Alma Mater; Harvard exchange professor at the Universities of Berlin and Jena in 1912 and 1913; eminent as an anatomist; member of many learned societies; author of numerous papers on anatomy, embryology and biology; died at his home in Boston, November 19, aged 61.

John Shrady, M.D. College of Physicians and Surgeons in the City of New York, 1861; a member of the Medical Society of the State of New York and once president of the New York County Medical Association; formerly editor of the *Medical Register*; for fifty years a practitioner of Harlem, N. Y., where he was familiarly known as the "Little Father of the Poor"; a veteran of the Civil War, in which he served as surgeon of the Second East Tennessee Volunteer Infantry and a captive in Libby Prison; died at his home in Stamford, Conn., November 11, aged 84.

John Augustus Horgan, M.D. Harvard Medical School, 1888; a Fellow of the American Medical Association and a resident of Roxbury for more than twenty-five years; president of the St. Vincent De Paul Society of Boston, and visiting physician to the Foxboro State Hospital; died at his home in Roxbury, Boston, November 11, after a surgical operation, aged 59.

Eugene A. Hutchins, M.D. Berkshire Medical College, Pittsfield, Mass., 1862; for thirty years a practitioner of Minneapolis; a member of the Minnesota State Medical Association; consulting physician to the Asbury Hospital, Minneapolis; died in that institution, November 9, after a surgical operation, aged 76.

William Theodore Fletnitz, M.D. University of Basle, Switzerland, 1895; National Medical University, Chicago, 1901; a Fellow of the American Medical Association; formerly treasurer of the Central-Western Kansas Medical Society; died suddenly at his home in Kansas City, Mo., November 1, aged 47.

Wilson R. Priest, M.D. Medical College of Ohio, Cincinnati, 1886; a member and once president of the Kansas Medical Society; local surgeon at Concordia, Kan., for the Missouri Pacific and Santa Fe systems; chief surgeon to St. Joseph's Hospital, Concordia; died at his home November 10, aged 54.

C. Milo Brady, M.D. Tulane University, New Orleans, 1893; medical inspector of the Louisiana State Board of Health for a time; for several months a student of tropical diseases on the West Coast of Africa and in Mexico; died at the home of his father in Waggaman, La., November 5, aged 45.

Thomas Benton Spaulding, M.D. New Orleans School of Medicine, 1860; assistant surgeon to the Fifteenth Louisiana Volunteer Infantry, C. S. A., during the Civil War, and later a practitioner of Kingston and Greenville, Texas; died at the home of his daughter in Dallas, Texas, October 27, aged 74.

Jacob Lopes Cardozo, M.D. Medical College of the State of South Carolina, Charleston, 1878; chief of staff of the Gates Avenue Dispensary and physician to the Eastern District Dispensary, Brooklyn; died at his home in Brooklyn, November 3, from senile debility, aged 82.

Joseph Lewis Powers, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1876; formerly health officer of Reinbeck, Iowa; but for several years a resident of Waterloo; died at the home of his daughter in that city, October 29, from cerebral hemorrhage, aged 90.

Joseph P. Mellard, M.D. Medical College of the State of South Carolina, Charleston, 1872; formerly a Fellow of the American Medical Association; a member of the South Carolina Medical Association; died at his home in St. George, S. C., October 12, aged 76.

Walter C. Stillwell, M.D. University of Pennsylvania, Philadelphia, 1873; a member of the Medical Society of the State of Pennsylvania and for many years a druggist of Philadelphia; died at his home in that city, November 14, from cerebral hemorrhage, aged 63.

Henry H. Pemberton, M.D. Jefferson Medical College, 1872; Hahnemann Medical College, Philadelphia, 1873; for forty years a practitioner and real estate broker of Long Branch, N. J.; died at his home in that city, November 11, from heart disease, aged 65.

Simon Preston Brown, M.D. Rush Medical College, 1869; for more than forty years a practitioner of Elgin, Ill.; died at his home in that city, November 7, from senile debility, aged 82. At his funeral eight physicians of Elgin served as active pallbearers.

John Wilson Hammonds, M.D. University of Nashville, Tenn., 1867; surgeon in the Confederate service throughout the Civil War; for nearly half a century a practitioner of Sevier County, Ark.; died at his home in Chapel Hill., Ark., October 28, aged 75.

Charles Buchanan Martin, M.D. University of Pennsylvania, Philadelphia, 1887; for several years a practitioner of Tacoma, Wash., but since 1903 a resident of Quarryville, Pa.; died at the home of his sister in that place, October 26, from nephritis, aged 53.

Osmon Baker Way, M.D. Dartmouth Medical College, Hanover, N. H., 1866; a member of the New Hampshire Medical Society and a well-known physician of Claremont, N. H.; died in Brattleboro, Vt., October 26, from arteriosclerosis, aged 74.

Ward Beecher De Long, M.D. Ensworth Medical College, St. Joseph, Mo., 1906; a member of the Missouri State Medical Association and a practitioner of Saline, Mo.; was killed by the overturning of his automobile near Saline, November 8, aged 43.

Thomas Lafayette, M.D. University of Lyons, France, 1844; a pioneer practitioner of Southwestern Missouri and assistant surgeon of Volunteers throughout the Civil War; died at his home in Hopkins, Mo., August 16, from senile debility, aged 95.

Wilfred V. Stephenson, M.D. University Medical College, Kansas City, Mo., 1905; of Mound City, Kan.; a Fellow of the American Medical Association; died in Wesley Hospital, Kansas City, Mo., November 10, from heart disease, aged 35.

Andrew Sprague Oliver, M.D. Hahnemann Medical College, Philadelphia, 1881; for four years a member of the board of public library trustees of San Jose, Cal.; died at his home in that city, November 8, from cerebral hemorrhage.

Thomas Walker Stone, M.D. Louisville (Ky.) Medical College, 1884; of Los Angeles, Cal.; formerly a member of the faculty of the medical College of Evansville, Ind.; died in the Stockton, Cal., State Hospital, November 6, aged 59.

John F. Campbell, M.D. University of Michigan, Ann Arbor, 1876; a Fellow of the American Medical Association and for fifteen years a member of the board of education of Lansing, Mich.; died at his home in that city, November 3, aged 61.

Samuel Stem Apple, M.D. Jefferson Medical College, 1869; a member of the Medical Society of the State of Pennsylvania and a veteran of the Civil War; died at his home in Easton, Pa., November 11, from senile debility, aged 75.

Alexander Donaldson McDonald, M.D. Washington University School of Medicine, Baltimore, 1877; a member of the Medical Society of the State of North Carolina; died at his home in Wilmington, N. C., November 7, aged 82.

James Webster Belden, M.D. Tulane University, New Orleans, 1888; of New Orleans; died in Touro Infirmary, New Orleans, November 7, from carcinoma of the intestine, three days after a surgical operation, aged 54.

Alexander Martin Heron, M.D. Medico-Chirurgical College of Philadelphia, 1899; a Fellow of the American Medical Association; formerly health officer of Lakewood, N. J.; died at his home in that place, October 11, aged 49.

John Hooker McCutchan, M.D. Starling Medical College, Columbus, Ohio, 1894; surgeon to the Evansville and Indiana Southern Traction Company at Evansville, Ind.; died in a hospital in that city, November 7, aged 44.

John N. Kerr, M.D. Starling Medical College, Columbus, Ohio, 1877; for many years a practitioner of Logan County, Ohio; died at his home in Boise, Idaho, September 4, from valvular heart disease, aged 62.

Martin Luther Knight, M.D. Tulane University, New Orleans, 1895; a member of the Mississippi State Medical Association; died at his home in Hazelhurst, Miss., July 18, from angina pectoris, aged 54.

James Ward Keeney, M.D. Bellevue Hospital Medical College, 1874; formerly a member of the board of health and police pension board of San Francisco; died in that city, November 7, aged 62.

James Alison Lee, M.D. State University of Iowa, Iowa City, 1873; for many years a practitioner of Lone Tree, Iowa; died at his home in Lisbon, Iowa, October 28, from carcinoma of the liver and mesentery, aged 66.

Edward Harvey Taft, M.D. Dartmouth Medical School, Hanover, N. H., 1897; a Fellow of the American Medical Association; died suddenly at his home in Milford, N. H., November 4, aged 45.

Alvah Miller Wilson, M.D. Washington University Medical School, St. Louis, 1896; formerly a Fellow of the American Medical Association; died at his home in St. Louis, November 3, aged 39.

Joseph Muse Worthington, M.D. University of Maryland, Baltimore, 1872; a member of the Medical and Chirurgical Faculty of Maryland; died at his home in Annapolis, September 21, aged 68.

William H. Hall, M.D. Eclectic Medical Institute, Cincinnati, 1870; died at his home in Havana, Ill., October 30, a short time after a surgical operation performed in Chicago, aged 74.

Robert K. Cherry, M.D. Leonard School of Medicine, Raleigh, N. C., 1906; a colored practitioner of Germantown, Philadelphia; died at his home, October 28, from pneumonia, aged 34.

Samuel J. Hoffman, M.D. University of Maryland, Baltimore, 1877; a member of the Medical Society of Virginia; died at his home in Woodstock, Va., from carcinoma, aged 62.

Godfrey Beaumont, M.D. University of Louisville, Ky., 1865; of Kalamazoo, Mich.; died at his summer home in Moore Park, Mich., September 26, from diabetes, aged 83.

Solomon Adams Bergman, M.D. Memphis Hospital Medical College, Memphis, Tenn., 1906; of Buck, Tex.; died in Moscow, Tex., August 1, from cerebral hemorrhage, aged 35.

Henry C. Miller, M.D. Homeopathic Medical College of Missouri, St. Louis, 1871; of Wilkinsburg, Pa.; died at the home of his sister in that place, November 2, aged 80.

Milledge Marcellus Conner, M.D. Kansas City Hospital College of Medicine, Kansas City, Mo., 1885; of Augusta, Ga.; died in the Augusta City Hospital, October 25.

Deville J. Moyer, M.D. University of Michigan, Ann Arbor, 1893; a member of the Kansas Medical Society; died at his home in Junction City, Kan., September 9, aged 52.

Edward R. Wren (license, Mississippi) for many years a practitioner of Amory, Miss.; died at the home of his son in Ensley, Ala., October 26, aged 76.

Edward Horton Flint, M.D. Hahnemann Medical College, Chicago, 1880; died at his home in Syracuse, N. Y., October 30, from pneumonia, aged 54.

George Washington Chamberlain, M.D. New York University, New York City, 1873; died at his home in Hinsdale, Mass., October 5, aged 65.

A. G. Andrews, M.D. University of Louisville, Ky., 1868; died at his home in Spring Creek, Tenn., August 16, from senile debility, aged 81.

Eugene Bonaparte Cushing, M.D. Hahnemann Medical College, Philadelphia, 1871; died at his home in Lynn, Mass., September 21, aged 68.

W. Rudolph Froelich, M.D. University of Würzburg, Germany, 1903; died suddenly at his home in Stuttgart, Ark., September 25, aged 37.

Henry Jefferson Hascall, M.D. Boston University School of Medicine, 1879; died at his home in Shrewsbury, Mass., September 19, aged 62.

Isaac Grimshaw Worrall, M.D. New York University, New York City, 1850; died at his home in Creskill, N. J., about October 26, aged 86.

Charles Samuel Sargent, M.D. Boston University School of Medicine, 1879; died at his home in Webster, Mass., September 26, aged 58.

James Thompson Wilson, M.D. University of Pennsylvania, Philadelphia, 1864; died at his home in Tyrone, Pa., September 23, aged 74.

Eugene Hinton Rencher, M.D. University of Alabama, Mobile, 1910; died at his home in Jamestown, Ala., September 17, aged 37.

Lorenzo William Thompson, M.D. Trinity Medical College, Toronto, 1885; died at his home in Listowel, Ont., September 13, aged 60.

Ethan G. Allen, M.D. Pulte Medical College, Cincinnati, 1889; died at his home in Shreveport, La., October 21, aged 58.

Correspondence

Postgraduate Education

To the Editor:—If the practicing physician would either move forward, or prevent his falling behind the times, he must avail himself at intervals of postgraduate courses. The necessity for providing these has long been recognized both at home and abroad, notably in the German Empire, but the task of properly organizing the work of postgraduate instruction is still unfinished.

In December, 1899, distinguished physicians of Berlin in collaboration with the Prussian state government organized the Central Committee of Postgraduate Medical Education in Prussia, whose duty "is fulfilled in stimulating the scientific education of practical physicians, by promoting in the larger Prussian towns the organization of local unions which take on themselves the work of arranging gratuitous courses and lectures." Of these local unions not less than thirty-one are in existence. The expenses of organization of the central committee are met by a contribution from the Prussian state government, in certain parts of the empire by subventions from local societies, and by a small matriculation fee paid by auditors. During the years from 1900 to 1906 there were called to life in other states of the confederation and in Prussia national committees for the purpose of promoting medical extension courses.

In 1908 on the initiation of the Prussian central committee, the members of state committees of the various federated states of the German empire met and founded the Imperial Federal Board for Postgraduate Medical Education. The function of the federal board consists in giving definite suggestions at occasional conferences to the chairmen of the state committees, but the latter work quite independently for their own state. These demonstratorial courses and lectures are free (a small registration fee excepted), and the lecturers receive no recompense as a rule, "but only repayment of their actual expenses."

To Germany belongs the credit of the founding in 1910 of an international committee for medical postgraduate education, and not less than fifteen countries, including the United States, are represented by delegates. This committee holds periodic conferences, generally on the occasions of the international medical congresses, at which questions of vital interest bearing on postgraduate education are discussed with a view to mutual enlightenment and stimulation.

With a view to promoting postgraduate medical education in general, and at the same time as a memorial to the Empress Friedrich, the Kaiserin Friedrich-Haus was established in 1900, solely as the result of voluntary contributions, amounting to 1,500,000 marks, and dedicated in the presence of the emperor and empress. The annual cost of maintenance is about 50,000 marks ($12,500), derived partly from the state government, partly from rentals paid by both the university and exhibitors, and finally from the foundation capital not used up in building. The present director is Prof. Dr. C. Adam, who conducts visitors through the handsome structure, pointing out its numerous and varied treasures, and also the uses to which the various portions of the building are devoted. As stated in a leaflet issued by him, the Haus serves:

1. "As a central home for postgraduate medical education and its organizations, namely, (*a*) the Central Committee for Medical Postgraduate Education in Prussia; (*b*) the Federal Board for Postgraduate Medical Education; (*c*) the International Committee for Medical Postgraduate Education.

2. "As a center of instruction for physicians. It contains rooms and laboratories for practical courses in all the sciences auxiliary to modern medicine, such as clinical chemistry, microscopy, bacteriology, roentgenology and scientific photography; also a large and a small theater for lectures.

3. "As a central depot for auxiliary appliances for medical instruction belonging to the 'State Collection of Medical Educational Appliances.' This depot lends free of charge material for teaching purposes for physicians' courses, academic lectures, as also for the instruction of the lay public in

the science of public health, etc. It contains appliances for demonstrations of all kinds, such as diapositives, microscopic preparations, stereoscopic illustrations, charts, atlases, manikins, etc.; the other objects are collected in the following special divisions: plastic department, nursing department and medicohistorical department (with a historical collection of instruments and bandages). Admission to physicians, only, and free of charge. Open as a rule on Wednesday from 10 to 3.

4. "As a place of union for medical science and practical medical technology by means of the 'Permanent Exhibition for the Medicotechnical Industry,' where the doctor will find all the instruments and appliances necessary for the practice of his profession in the departments of surgery, electromedicine, optics, etc.; open to all free of charge, on weekdays (except Saturday) from 10 to 3.

5. "As a place for exhibitions, rooms being placed free of charge at the disposal of special scientific exhibitions for medical instruction.

6. "As a medical information bureau which gives, *gratis*, information concerning all postgraduate courses in the German Empire, as also concerning all other matters touching on the postgraduate education; furthermore, concerning all medical institutions, hospitals, collections, etc., in Berlin with regard to the time and conditions for their inspection; lastly, concerning the possibility of participation in clinical lectures and lecture evenings of medical associations.

7. "As a literary center for all matters concerning postgraduate education, since also the editorial offices of the *Zeitschrift für ärztliche Fortbildung*, published by the German organizations for postgraduate education, are to be found here."

If there was a single reason for the creation of so complete an organization of graduate medical education as has been developed in Germany during the last decade and a half, then there are a dozen equally cogent reasons why the question of the reorganization of postgraduate education in America should be taken up with a view to bringing about a uniform and much extended system. I would suggest that the work already begun in this country under the auspices of the American Medical Association be promptly enlarged and promoted. J. M. Anders, M.D., Philadelphia.

School Athletics and Gate Money

To the Editor:—I was much interested in the editorial on "High School Athletics" (The Journal, Nov. 14, 1914, p. 1765). I should like to see another dealing with the prevention of the evil therein discussed. My own experience, embracing my own student life at school and college, with participation in their athletic activities, three years as teacher in boys' boarding schools, and the observation of sixteen years as a physician sharpened by a never-waning interest in educational subjects, has long since led me to the conclusion that the key to the evil is *gate money*.

Students as individuals do not engage in professionalism, but colleges collectively do so, as surely as do the owners of the baseball league teams. They do not receive their profits in the form of dividend checks, but in the increased attendance and students' fees, and in endowment. The money received is spent on trainers, war material and commissariat, and even on spies. Athletic fields are erected that exceed in seating capacity the Colosseum. Athletics, intended as the young man's sport and recreation, *ut sit mens sana in corpore sano*, has become a commercialized asset, and the candidate for a school or varsity team completely loses his individuality and initiative, becoming the puppet of a professional coach, the tenure of whose office and the size of whose salary depends on the amount of kinetic energy he is able to extract from those under his direction.

Let us imagine, if we can, college athletic contests without a charge for admission. They would cease to be public property, and would be supported by the contributions of the students themselves and of those who are properly interested in their activities. Doubtless there would be less money spent, the public would be deprived of their entertainment, and the college of valuable advertising assets. Sport writers of the daily newspapers would be deprived of much material and the poor trainer and coach would lose their jobs. The contests themselves would lose much of their proficiency. The training table would disappear, and the output of energy would be within the limit of that furnished by the ordinary college diet.

But even these woes might be endured if we had better sportsmanship, and fewer cardiopathies in later life.

B. M. Randolph, M.D., Washington, D. C.

Proper Regulation of School Athletics

To the Editor:—To all those who are interested in the health of schoolchildren, the editorial on "High School Athletics" (The Journal, Nov. 14, 1914, p. 1765) is most welcome. Criticisms of unregulated and unguarded high school athletics are, however, often undeserved. I would join with you in the appreciation of well-conducted physical training work in the gymnasium. There are, however, two forms of athletics: the *intensive*, which is the usual form, in which a few boys in the school are collected on account of their individual powers to undergo a course of training and to represent their school on the athletic field, and the *extensive* form of athletics, in which we endeavor to get all of the student population in healthful athletic training.

In New York City we carry on the intensive form, but have emphasized strongly in recent years the more popular distribution of the benefits of athletics.

Since the organization of the Public Schools Athletic League in 1903, the incorporation of athletics as an official part of the Department of Physical Training, and the establishment of a system of medical examination of all prospective athletes, I have been unable to obtain an authentic record of damage to elementary or high school pupils as a result of athletics. Therefore, I feel constrained to recommend that the weight of medical opinion be directed not against the prohibition of athletics, but toward their proper regulation.

C. Ward Crampton, M.D., New York.
Director of Physical Training.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

HOW CHAMPAGNE IS MADE

To the Editor:—Would you kindly tell me what kind of grapes or wine is used in making champagne? I understand that a dry, white wine with a dash of cognac brandy and a little sugar is used. How is it made? J. M. White, M.D., Meridian, Miss.

Answer.—In sparkling wines, as champagne, the primary fermentation is checked at an early stage, so that a secondary or complementary fermentation may occur in the bottle, and cause the sparkle which is characteristic of this class of wine. The juice of black grapes only is used for some kinds, the skins being rejected to avoid the extraction of the coloring matter and tannin. For others red or white grapes are crushed, and, except when colored wines are desired, the juice drawn off at once to prevent the extraction of coloring matter and tannin from the skins and stalks. If a colored wine be desired, the initial fermentation is made before the juice is removed from the crushed fruit. The marc—that is, the crushed skins, etc.—is put under a screw press to remove the remainder of the juice. The latter process is now done in many manufactories by the centrifugalizing machine. The must is fermented in vats for about fourteen days, after which it is racked, the sediment allowed to deposit, and the wine put into casks until winter. It is then transferred to other casks, some finings (gelatin, albumin, kaolin, calcium sulphate, etc.) being added at the same time, and a month is allowed for it to clarify. After this it is blended, some mature wine being put into the mixture, and the amount of sugar in it ascertained. The presence of a definite amount of sugar is necessary to insure the future sparkle. If, therefore, the amount is deficient, some syrup or sugar-candy is added. It is now bottled, and the bottles laid on their sides for a few weeks until the development of carbonic acid gas commences. The wine is then transferred to cellars, some of which are more than 100 feet deep, cut into the chalk, and admirably suited by their uniform temperature to assist in the maturation of the wine. Here it remains three or four years, during which the same changes go on as in the maturation of other wines. A deposit forms, and, as it is desirable to prevent it adhering to the sides of the bottle, it is agitated now and then. After three years the bottles are placed obliquely, so that the deposit may fall on and firmly adhere to the cork. Finally the cork is removed, and the deposit with it; the bottle is filled up with liqueur made of old champagne, brandy and sugar, and it is freshly corked and wired. The secondary fermentation now continues, during which the flavor and aroma of the wine are developed, and the effervescence and sparkle are insured.

CRITICISM OF A PRESCRIPTION

To the Editor:—Is the following prescription a good combination? Such a combination might frequently seem indicated in cases such as painful genito-urinary infection, renal or vesical, and yet the combination changes to a pasty gummy consistency. I wonder whether there is not some chemical change that would alter its efficacy. Please criticize:

Urotropin ....
Sod. Benzoat. ....
Aspirin ....āā ℥i
M. et divide in chart. No. xii.

X. Y. Z.

Answer.—The combination is not a good one for several reasons. Hexamethylenamin (urotropin) and acetyl salicylic acid (aspirin) are chemically incompatible. However, although incompatibility exists in solution, the hexamethylenamin decomposing to yield ammonia and formaldehyd, decomposition would probably occur only to a slight extent in the dry state. Therapeutically, there seems to be no objection to the prescription, if the author sees indications in a case under treatment for the remedies mentioned. If we suppose that hexamethylenamin is used as a urinary antiseptic, its use would probably be indicated for some time. The aspirin presumably is given to relieve pain. It must therefore be considered only as a temporary remedy to be given for a special purpose, and when that purpose is accomplished, should be discontinued. It would better not be combined in the same prescription with the urinary antiseptic lest its purpose be forgotten and the drug be unnecessarily continued. As The Journal has repeatedly pointed out, hexamethylenamin should be prescribed under its proper name, and not by a copyrighted trademark. By calling hexamethylenamin by the proprietary name the physician does not insure that he will get a purer or better drug. He enhances the cost to the druggist, if not to the patient, and prevents the using of any other brand of the pure chemical which the druggist may happen to have in stock.

MILK-SICKNESS

To the Editor:—A family of six acquired milk-sickness which was traced to one cow having the trembles. Five of the family were severely affected, one dying. The father of the family was not affected by the disease. All of them excepting the father drank of the milk while it was sweet. The father used it only after it was churned, as butter and buttermilk. Please answer these questions as fully as possible:

1. Does the liberation of the acids formed by the transformation of sweet milk to buttermilk destroy the poison of milk-sickness?

2. Milk-sickness is evidently a germ disease. Tell what you can concerning its etiology.

3. What other toxemias are characterized by severe subnormal temperatures?

R. L. Talley, M.D., Bible Grove, Ill.

Answer.—1. Apparently not. There are many instances on record in which butter has been held responsible for the conveyance of milk-sickness. Probably in the case you mention the difference may have been quantitative—a smaller amount of buttermilk being used, so that the size of the dose was less than in the case of those drinking fresh milk.

2. We may refer you to a paper by Jordan and Harris appearing in the *Journal of Infectious Diseases*, September, 1909, vi, No. 4. You can probably obtain a reprint by addressing the authors.

3. Many non-infectious toxemias are associated with a low temperature, as seen in the collapse after organic poisoning, especially when there is vomiting and loss of food.

ARTICLES ON TETANUS

To the Editor:—Please advise me of any recent developments in tetanus.

C. A. Hofer, M.D., Metuchen, N. J.

Answer.—The following is a list of recent articles on this subject:

The Administration and Value of Tetanus Antitoxin, editorial, The Journal, Aug. 30, 1913, p. 687.
Jones, F. R.: Tetanus, *Semana méd.*, Sept. 26, 1912; abstr., The Journal, Nov. 30, 1912, p. 2014.
The Value of Tetanus Antitoxin, correspondence, The Journal, Dec. 7, 1912, p. 2084.
Irons, E. E.: Treatment of Tetanus by Antitoxin, The Journal, June 27, 1914, p. 2025.
The Serum Treatment of Tetanus, editorial, The Journal, April 11, 1914, p. 1174.
Ashhurst, A. P. C., and John, R. L.: Rational Treatment of Tetanus with Report of Twenty-Three Cases, *Am. Jour. Med. Sc.*, June and July, 1913.
Holman, C. J.: Magnesium Sulphate in Tetanus, *St. Paul Med. Jour.*, June, 1911; abstr., The Journal, July 1, 1911, p. 45.
Parker, George: Treatment of Tetanus with Magnesium Sulphate, with Report of Three Cases, The Journal, June 8, 1912, p. 1746.
Kocher, T.: Magnesium Sulphate in Tetanus, *Cor.-Bl. f. schweiz. Aerzte.*, 1912, xlii, No. 26, abstr., The Journal, Oct. 19, 1912, p. 1496.
Kocher, T., and Arnd, G.: Cure of Tetanus by Magnesium Sulphate, *Cor.-Bl. f. schweiz. Aerzte.*, 1913, xliii, No. 4, abstr., The Journal, March 29, 1913, p. 1036.

TUBERCULIN IN DIAGNOSIS

To the Editor:—1. Is tuberculin, given hypodermically, used as a diagnostic test for tuberculosis by the best clinicians at present?

2. Would it be advisable to give tuberculin for diagnostic purposes in a patient having night-sweats, in whom there is no discoverable cause for them?

Answer.—1. Yes. Koch's old tuberculin is used for diagnostic purposes by many of the best physicians. Some, however, regard its use as being attended by a certain risk of causing a flare up of a local focus, a danger that certainly attends the use of large doses. When used, the initial dose should be small, perhaps not more than 0.1 milligram. In the event of negative results the dose may be increased by 0.5 mg. or 1 mg. every two or three days up to a point at which even 5 mg. are given. Careful temperature records should be taken at short intervals after the injection. Otherwise no interpretation of a reaction is possible. In instances in which fever already exists, the reaction is difficult of recognition. It should always be kept in mind that a positive reaction, though showing the existence of tuberculosis, does not necessarily mean that the symptoms for which an explanation is sought are produced by the tuberculosis process that is somewhere in the body.

2. Tuberculin would probably be safe in the case described and might help in diagnosis.

CUSTOM OF YOUNGER PHYSICIANS CALLING ON OLDER

To the Editor:—In a recent discussion, the question was brought up as to whether it was correct for the new practitioner in a town to call on his fellow practitioners first, or whether they should call on him first. Can you put me right on this?

R. L. K.

Answer.—The Journal has replied to this question before, as follows: "It is an accepted custom for young physicians and newcomers to call on the older physicians and those of longer residence in the locality. It is a mark of courtesy and respect due from one locating in a new place. He thus announces his arrival and his desire to be recognized in professional circles and friendships." This custom must not be confused, as it appears sometimes to be, with that which governs social relations when a family takes up its residence in a new locality.

ACCIDENTS TO UNSUITABLY EMPLOYED EPILEPTICS

To the Editor:—I am preparing a paper on "Accidents Due to Epileptics Being Unsuitably Employed," or being in unsuitable places at the time of seizure, to be illustrated by photographs of patients showing resultant mutilations.

Will you kindly put me in touch through the pages of The Journal with physicians having had such patients, who would be willing to send photographs showing result of such accidents? The physicians would get full credit, names of patients would not be mentioned, and photographs would be returned.

I feel the importance of such a paper of warning on account of the number of crippled epileptics, often preventable cases too, who frequent my consulting rooms.

Matthew Woods, M.D., 1402 Spruce Street, Philadelphia.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Alabama: Montgomery, Jan. 5, 1915. Chairman, Dr. W. H. Sanders, Montgomery.

Alaska: Juneau, Jan. 5, 1915. Sec., Dr. H. C. DeVighne, Juneau.

Arizona: Phoenix, Jan. 5-6, 1915. Sec., Dr. John Wix Thomas, 200 Nat'l Bank of Ariz. Bldg., Phoenix.

California: Los Angeles, December 8. Sec., Dr. Charles B. Pinkham, 727 Butler Bldg., San Francisco.

Delaware: Dover and Wilmington, December 8-10. Sec., Dr. H. W. Briggs, 1026 Jackson St., Wilmington.

Florida: Palatka, December 2-3. Sec., Dr. E. W. Warren, 102 Front St., Palatka.

Kentucky: Louisville, December 16-18. Sec., Dr. A. T. McCormack, Bowling Green.

Maryland: Baltimore, December 8. Sec., Dr. J. McP. Scott, 137 W. Washington St., Hagerstown. Homeopathic, Baltimore, December 15-16. Sec., Dr. O. N. Duvall, 1817 N. Fulton, Baltimore.

Minnesota: Minneapolis, Jan. 5-8, 1915. Sec., Dr. Thomas McDavitt, 814 Lowry Bldg., St. Paul.

Missouri: St. Louis, December 14-16. Sec., Dr. J. A. B. Adcock, State House, Jefferson City.

New Hampshire: Concord, December 29-30. Regent, Mr. H. C. Morrison, Concord.

North Dakota: Grand Forks, Jan. 5, 1915. Sec., Dr. G. M. Williamson, Grand Forks.

Ohio: Columbus, December 8-10. Sec., Dr. George H. Matson.

Pennsylvania: Philadelphia, December 1-3. Sec., Dr. N. C. Schaeffer, Harrisburg.

Rhode Island: Providence, Jan. 7, 1915. Sec., Dr. Gardner T. Swarts, State House, Providence.

Utah: Salt Lake City, Jan. 4-5, 1915. Sec., Dr. G. F. Harding, 407 Templeton Bldg., Salt Lake City.

Virginia: Richmond, December 15-18. Sec., Dr. J. N. Barney, Fredericksburg.

Washington: Walla Walla, Jan. 5, 1915. Sec., Dr. C. N. Suttner, Baker Bldg., Walla Walla.

Arizona April Report

Dr. John Wix Thomas, secretary of the State Board of Medical Examiners of Arizona, reports the written examination held at Phoenix, April 7, 1914. The total number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 13, of whom 8 passed, including 2 osteopaths, and 5 failed. Licenses were issued to 4 candidates who were in active practice prior to the adoption of the law. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Indiana Medical College	(1906)	77.8
University of Maryland	(1913)	76.7
Tufts College Medical School	(1903)	75.3
Washington University	(1907)	80
Medico-Chirurgical College of Philadelphia	(1913)	76
Royal College of Physicians, Edinburgh	(1882)	68.6*

* Ten per cent. credit allowed for years of practice.

FAILED

College	Year Grad.	Per Cent.
Chicago College of Medicine and Surgery	(1913)	72.8
Hospital College of Medicine, Louisville	(1904)	40.3
Baltimore Medical College	(1913)	70.3
Barnes Medical College	(1902)	61
University of Tennessee	(1901)	53.9

Colorado July Report

Dr. David A. Strickler, secretary of the Colorado State Board of Medical Examiners, reports the oral and written examination held at Denver, July 7, 1914. The total number of subjects examined in was 8; total number of questions asked, 80; percentage required to pass, 75. The total number of candidates examined was 13, all of whom passed. Eleven candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
University of Colorado (1914) 82, 82.9, 83.5, 84.3, 84.4, 85.1, 85.9, 85.9, 87.9, 91.4.		
State University of Iowa, College of Medicine	(1914)	83.2
Harvard University	(1914)	91.6
National University of Ireland	(1911)	87.4

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Arkansas Industrial University	(1891)	Missouri
Northwestern University	(1912)	Oklahoma
Medical College of Indiana	(1893)	Illinois
Louisville and Hospital Medical College	(1908)	W. Virginia
Tulane University of Louisiana	(1908)	Louisiana
University of Michigan, Dept. of Med. and Surg.	(1907)	Michigan
St. Louis University (1911) Illinois;	(1913)	Missouri
Hahnemann Medical College and Hospital, Phila.	(1899)	Penna.
Jefferson Medical College	(1912)	Iowa
Chattanooga Medical College	(1899)	Tennessee

Indiana July Report

Dr. W. T. Gott, secretary of the Indiana State Board of Medical Registration and Examination, reports the written examination held at Indianapolis, July 14-16, 1914. The total number of subjects examined in was 16; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 42, of whom 41 passed, including 2 osteopaths, and 1 failed. Fifteen candidates were licensed through reciprocity. The following colleges were represented.

PASSED

College	Year Grad.	Per Cent.
University of Colorado	(1913)	83.8
Chicago College of Med. and Surg. (1913) 82, 84.7; (1914) 84.2, 85.2, 88.8.		
College of Physicians and Surgeons, Chicago	(1908)	91.4
Hahnemann Med. Coll. and Hosp., Chicago (1912) 83.2,	(1913)	77.1
Indiana University (1914) 81.6, 82.7, 82.8, 83.4, 84.4, 85.2, 85.7, 86.8, 86.8, 87, 88, 88.1, 88.2, 89, 89, 89.2, 89.3, 90.4, 90.7, 90.9, 92, 92.		
Medical College of Indiana	(1904)	82.8
Physio-Medical College of Indiana	(1902)	85.9
University of Louisville	(1914)	90
Marion-Sims College of Medicine	(1892)	75
St. Louis University	(1914)	89.2
Bellevue Hospital Medical College	(1892)	78.2
Eclectic Medical College, Cincinnati	(1914)	92.5
Ohio-Miami Medical College	(1914)	91

FAILED

College	Year Grad.	Per Cent.
Chicago College of Medicine and Surgery	(1913)	62.8

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
College of Physicians and Surgeons, Chicago	(1912,2)	Illinois
Rush Medical College	(1912)	Illinois
Drake University	(1906)	Iowa
State University of Iowa, Coll. of Med.	(1912)	Iowa
University of Louisville (1910)	(1912)	Kentucky
University of Michigan, Department of Medicine and Surgery (1908) (1911)	(1912)	Michigan
Univ. of Michigan, Homeo. Med. College	(1912)	Michigan
National Normal University	(1892)	Ohio
Western Reserve University	(1909)	Tennessee
University of Pennsylvania (1902) New York;	(1912)	Penna.

Maine July Report

Dr. Frank W. Searle, secretary of the Maine Board of Registration of Medicine, reports the written examination held at Augusta, July 7-8, 1914. The total number of subjects examined in was 10; total number of questions asked, 90; percentage required to pass, 75. The total number of candidates examined was 35, of whom 30 passed and 5 failed. Two candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Medical School of Maine (1914) 77, 79, 79, 79, 83, 84, 84, 84, 85, 87, 87, 88, 88, 88, 92.		
Baltimore Medical College	(1911)	83
University of Maryland	(1914)	81, 85
College of Phys. and Surgs., Boston (1913) 75;	(1914)	80
Harvard University (1911) 91;	(1914)	86, 92
Tufts College Medical School (1913) 85;	(1914)	80
Columbia University (1910) 86;	(1914)	91
New York Homeo. Med. Coll. and Flower Hosp.	(1888)	83
University of Pennsylvania	(1909)	92
University of Vermont	(1914)	87

FAILED

College	Year Grad.	Per Cent.
Medical School of Maine	(1914)	72, 77*
Maryland Medical College	(1912)	74
Boston University	(1914)	74
College of Phys. and Surgs., Boston	(1913)	73

* Fell below the required average in one subject.

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
College of Phys and Surgs., Chicago	(1889)	Missouri
Medical School of Maine	(1893)	W. Virginia

Book Notices

Public Health Laboratory Work. By Henry R. Kenwood, M.B., F.R.S., D.P.H., Chadwick Professor of Hygiene and Public Health, University of London. Sixth edition. Cloth. Price, 10 shillings net. Pp. 413, with illustrations. London: H. K. Lewis, 1914.

In this edition of Kenwood's book the summary of public health bacteriologic work, which was formerly included, has now been omitted, in order to keep the volume within the compass of a handy laboratory guide. It is devoted entirely to the chemical side of public health laboratory work. The author believes that the needs of the public health student in bacteriology are now fully provided for by several excellent laboratory books. The idea is a good one, and if authors in general were more careful to prevent duplication of material when many good text-books already exist, there would not be so many incomplete and superficial text-books on the market. In an introductory note the author discusses the various apparatus used for the examinations outlined in the rest of the book, and supplements it with tables of weights and scales. The first part of the book deals with the chemical, microscopic and physical examination of water for public health purposes; the second to an analysis of sewage; the third part to soil; the fourth to air; the fifth to food, and the sixth to disinfectants. It is complete and up to date. Every phase is taken up simply and with complete directions for making the necessary tests. In the part on food examination all the common articles of diet are considered. With this book as a guide the public health laboratory worker will be able to carry out examinations for adulteration and standardization of any products which may be brought to him for this purpose. There are eighty-seven illustrations and several large plates, which add to the complete nature of the book.

Diagnosis of the Malignant Tumors of the Abdominal Viscera. By Rudolph Schmidt, Professor of Medicine in the University of Innsbruck. Authorized English Version by Joseph Burke, Sc.D., M.D., Attending Surgeon, Buffalo Hospital of the Sisters of Charity. Cloth. Price, $4. Pp. 361. New York: Rebman Company, 1913.

This work is divided into three parts. In Part 1, consisting of fifty-nine pages, are discussed the general methods of examination in abdominal conditions, general symptomatology and such etiologic factors as may be of importance in the taking of histories of malignant growths. Part 2, of 110 pages, is special and in it are discussed growths of the separate organs and regions. Part 3, of 187 pages, is devoted to case histories. The author's endeavor is to present the subject in a practical and clinical manner. Special stress, therefore, is laid on the early symptoms and on a careful and painstaking history, so conducted as to bring out the essential points. The case histories are all arranged according to a definite plan, which materially facilitates comparison and enables one to grasp more easily the relative importance of any particular factor. The arrangement of the history taking is as follows: (1) ancestry and relationship; (2) congenital peculiarities, metabolic dieases, etc.; (3) previous infectious diseases; (4) previous history of the digestive tract; (5) other previous history; (6) initial symptoms and further course; (7) objective symptomatology; (8) dates of events and duration of the disease, and (9) findings at necropsy or laparotomy. After each history is a brief critical note on the essential facts as brought out in that particular case. The author is rather conservative regarding the value of the Roentgen ray in the diagnosis of these conditions. He says: "With respect to the value of radiological examination in regard to abdominal diseases in general and gastro-intestinal affections in particular, it would seem that at the present time there are prevalent some rather exaggerated notions not only among the laity but also in the medical profession. The fact must not be overlooked that as sources of error in methods of examination radiology ranks among those that head the list." The author is very careful in his observations and exacting in his technic, yet some of the exceedingly delicate tests are often of scientific rather than of clinical value, which fact is recognized by the author, and he says: "Whoever for example utilizes large amounts of feces to obtain blood-coloring matter will have positive results oftener than he, as I recommend it, who carries out the test in a coarser way. To search for the smallest traces of blood is senseless and to no purpose." The translation is at times quite literal to the extent of making what in English are very cumbersome sentences, but there is no difficulty in arriving at the intended meaning.

The Diagnosis and Treatment of Digestive Diseases. A Practical Treatise for Students and Practitioners of Medicine. By George M. Niles, M.D., Professor of Gastro-Enterology, Atlanta Medical College. Cloth. Price, $5 net. Pp. 507, with 87 illustrations. Philadelphia: P. Blakiston's Son & Co., 1914.

This book is of much interest, especially because it was written by one living in the South, whence few medical monographs of its size come. The author states in the preface that he has attempted a concise, easily intelligible description of the diagnostic methods employed by stomach specialists and an exhaustive discussion of general and special therapy applied to diseases of the stomach and bowels. He has succeeded in making easily intelligible descriptions, but has not been concise. His best work is in the discussion of treatment. While the student or practitioner can gain many ideas in regard to diagnostic methods and treatment from this book, it cannot take the place of more authoritative or encyclopedic works on this subject as, for example, those of Boas, Einhorn or Hemmeter. A sufficient number of pages are devoted to the chemical and physical examination of the stomach and intestines and their contents, but the consideration of these subjects is not sufficiently detailed, and various methods are not sufficiently adjudged or valued. Too little is said of Roentgen examinations which have become important aids to diagnosis. Much is said about treatment, and most of it is judicious and commendable. Chapters are devoted, among other subjects, to local treatment of the stomach, local treatment of the intestines, hydrotherapy and psychotherapy. Only the commonest individual gastric and intestinal diseases are considered at all. The subject of the symptomatology and diagnosis of these is so briefly and unsatisfactorily considered that it is doubtful if a student without the aid of other books could make a diagnosis; certainly he would not know the natural course and fully comprehend the symptomatology of the diseases. The subject of the treatment of these special diseases is for the most part sufficiently full and detailed.

Clinical Examination of the Blood and Its Technic. A Manual for Students and Practitioners. By Prof. A. Pappenheim, Berlin. Translated and Adapted from the German by R. Donaldson, M.A., M.B., Ch.B., Pathologist Royal Berks Hospital, Reading. Cloth. Price $1.25 net. Pp. 87, with 5 illustrations. New York: William Wood & Co., 1914.

"This little book differs from all others that treat of the blood in so far as it deals only with what is absolutely essential and of first importance in clinical methods of blood examination. Of the three cardinal lines of blood investigation (viz., staining, counting of cells and hemoglobin estimation) only those methods have been described which have been definitely proved of value. Coupled with the description of methods, the respective features of normal blood have been briefly discussed; while, in addition the most important facts in the semiology, necessary for a proper understanding of pathologic conditions, have been dealt with."

Owing to the recognized position of Pappenheim in the field of hematology, it is interesting to note that he recommends the combination of the May-Grünwald stain with the Giemsa stain as the most serviceable panoptic blood stain at our disposal. For hemoglobin determinations he recommends Sahli's hemoglobinometer as the most practical clinical instrument. This little work needs no recommendation beyond the name of its writer to all who wish a clear and concise outline of the essentials of hematology. While the two plates of the various types of red and white cells found in the blood are adequate for the size of this work, yet they are not sufficiently comprehensive for those who may wish to make a more elaborate study of the blood. For the latter workers Pappenheim's atlas is intended.

Manual of Military Hygiene for the Military Services of the United States. By Valery Havard, M.D., Colonel, Medical Corps, United States Army, Retired. Published under the Authority and with the Approval of the Surgeon-General, U. S. Army. Second Edition. Cloth. Price, $5 net. Pp. 786, with 258 illustrations. New York: William Wood & Co., 1914.

The author says it has been found that soldiers on the march or in hard fighting campaigns, even though on scant rations, with worn-out clothing, and subjected to great exposure, are less subject to infectious diseases and sickness than when they are in permanent or semipermanent camps where they attempt to make themselves comfortable and devote much of their time to eating, sleeping and diverting themselves. Hard work and plain fare are good preservatives against disease. The main purpose of the principles and the purposes of military hygiene, therefore, is to protect the soldier against himself, his habits and his surroundings while in camp or barracks, where he spends the major portion of his time. These principles and purposes are clearly set forth in the book as they apply to soldiers on land and the naval forces, and as they relate to service in tropical and far northern climates, together with a discussion of infectious and parasitic diseases, the nutritive value of the various foods composing army rations, etc., all according to the latest ideas on these topics. The book is abundantly illustrated and contains a list of the more recent works on hygiene. At a time when military matters are actively to the fore, this book is timely, interesting and valuable.

Local Anesthesia. By Dr. Arthur Schlesinger. Translated by F. S. Arnold, B.A., M.B., B.Ch. Cloth. Price $1.50 net. Pp. 211, with 22 illustrations. New York: Rebman Company, 1914.

This is a handy little volume devoted to the practical discussion of local anesthesia with only casual references to theory. A brief historical survey precedes a splendid exposition of the physical principles of local anesthesia. Cocain is the author's choice of anesthetic and his remarks on cocain poisoning ought to be of value to any one who makes use of cocain for producing local anesthesia. Brief mention is also made of other substances used for this purpose. Quinin and urea hydrochlorid are not even mentioned. The adjuvants in local anesthesia, especially the adrenal preparations, are discussed thoroughly. Individual chapters are devoted to the methods of local anesthesia, such as cold, infiltration anesthesia, nerve blocking and blood-vessel anesthesia, general technic, and their application in operations on the various parts of the body. For review purposes or to get the author's views on the subject, the book fills a place; but if one wishes to get a more comprehensive view of the whole subject of local anesthesia, other, larger books must be consulted.

Spectrum Analysis Applied to Biology and Medicine. By the Late C. A. Macmunn, M.A., M.D. With a Preface by F. W. Gamble. Cloth. Price, $1.75 net. Pp. 112, with 21 illustrations. New York: Longmans, Green & Co., 1914.

Although spectrum analysis is often the most certain, if not the most delicate method of detecting the presence of many substances of great medical importance, nevertheless, very little use is made of such examinations by the practitioner, or even by the skilled laboratory worker. For this reason the appearance of this little posthumous monograph of Macmunn must be considered very timely. Simple perusal of this work will reveal many applications of spectrum analysis which may be employed as direct aids in diagnosis. The subject matter is divided into a preface and nine chapters, treating of the principles of spectrum analysis and their application to the study of various pigments of importance in general biology and medicine. Especial attention is given to the characteristics and differentiation of hemoglobin and its derivatives as well as of the biliary and urinary pigments. An extensive bibliography greatly enhances the value of the monograph. The book may be recommended as an extremely useful and valuable work for the general practitioner and, especially, for the laboratory investigator, who should employ the methods of spectrum analysis to a much greater extent than is customary.

Trachoma and Its Complications in Egypt. By A. F. MacCallan, M.D., F.R.C.S., Director of Ophthalmic Hospitals, Egypt. Cloth. Price, $2.50. Pp. 74. New York: G. P. Putnam's Sons, 1913.

In the home of this ancient disease the author has had abundant opportunity to study it in its various aspects. The clinical material on which the monograph is based embraces a total attendance in 1912, of 341,211 outpatients and a total number of 21,315 operations performed. More than 6,000 patients with trichiasis were turned away because of lack of equipment, but by the end of the present year there will be eight permanent and six traveling hospitals fully equipped, so that all who apply for treatment will probably be accommodated. The author has not attempted to give a complete description of all the methods of treating trachoma, but rather to give a simple description of the disease as it is encountered in the East, and of its treatment as carried out in the Egyptian ophthalmic hospitals. Following a brief historical sketch, the major portion of the book deals with trachoma in its various clinical phases, pathology, diagnosis, complications, sequelae and treatment. Statistics are given which emphasize the high percentage of cases of blindness resulting from trachoma.

Die Aeussere Sekretion der Verdauungsdrüsen. Von Dr. Med. B. P. Babkin, Professor der Physiologie am Institut für Land- und Forstwirtschaft zu Nowo-Alexandria. Paper. Price, 16 marks. Pp. 407, with 29 illustrations. Berlin: Julius Springer, 1914.

This work, with numerous tabulations and curves derived from experimental studies, deals with the gross and microscopic anatomy of the several digestive glands, but more particularly with their innervation, the mechanism of their operation and the work they perform. The fact that Babkin was for ten years associated with Pawlow as assistant sufficiently indicates the character of the themes discussed. Such questions as enzyme action and the chemistry of digestion are touched on "only in so far as has been found unavoidable for a proper differentiation of the several external secretions." The book collects and presents for the first time in compact form all of the later studies of the Pawlow laboratory together with a general review of the literature bearing on these subjects. The latter is extensive if not complete. It will be found valuable to American readers because of its exhaustive treatment of the not easily available Russian publications.

Beiträge zur Frage nach der Beziehung zwischen klinischem Verlauf und anatomischem Befund bei Nerven- und Geisteskrankheiten. Bearbeitet und herausgegeben von Franz Nissl. Volume 1, Part 2. Zwei Fälle von Katatonie mit Hirnschwellung. Paper. Price, 2.80 marks. Pp., 112, with 48 illustrations. Berlin: Julius Springer, 1914.

It is the author's aim to publish the complete case histories of nervous and mental cases, their post-mortem findings, including microscopic examination of tissues, with a view of gaining more definite knowledge of the anatomic basis of nervous and mental disease. The issue before us contains the complete report, both clinical and anatomic, of two cases of catatonia, which constitutes interesting reading. Asylum physicians and neurologists will find much of value in the perusal of the histopathologic descriptions and interpretations of these two cases.

Surgical Diseases and Injuries of the Genito-Urinary Organs. By J. W. Thomson Walker, M.B., G.M.Ed., F.R.C.S., Hunterian Professor of Surgery and Pathology, Royal College of Surgeons of England. Cloth. Price $7. Pp. 879, with 324 illustrations. New York: Funk and Wagnalls Company, 1914.

This book, offered as a text-book for the general practitioner and the student, embodies a survey of the literature, together with much of the extensive personal experience of the author. Although containing numerous valuable cystoscopic and roentgenographic plates, in its discussion of surgical technic it seems lacking in adequate illustrative material and the detailed description which enables the student to carry out the procedures recommended. Accordingly the book may be selected as a reference work of great value but would seem to fall short of the value placed on it by the author as a text-book.

Medicolegal

Injunction Granted Against Annoyances from Hospital

(Kestner et al. vs. Homeopathic Medical and Surgical Hospital (Pa.), 91 Atl. R. 659)

The Supreme Court of Pennsylvania affirms a decree enjoining the defendant hospital, of Reading, from using its building as a hospital until the emergency operating room should be removed to some other part of the building, and also restraining the defendant from permitting persons occupying rooms in the hospital from throwing refuse matter on the complainants' premises. The court says that it was found that the complainants' building had twenty-one windows and nine doors facing the hospital, the windows and all the doors, except two, being from 9 to 12 feet distant from the hospital. The rooms facing the hospital included the parlor, living room, dining room, kitchen, pantry and summer kitchen on the first floor, and sleeping rooms on the second floor, the dining room being less than 13 feet from the emergency operating room. A wooden fence about 9 feet high separated the two yards. Noises came to the complainants' property from the hospital, mostly from the emergency operating room, almost daily, and at all hours of the day and night. The trial judge also found that the hospital was equipped with the modern surgical and medical appliances, employed sufficient physicians and nurses, and used with promptness approved methods of relieving patients from pain and suffering and of preventing the outbursts complained of. Also that shrieks and screams were of no greater frequency than those emanating from well-regulated hospitals treating the same number of patients; that such noises are bound to occur wherever sick or injured persons may be, and particularly in a hospital where a large number of persons are brought, or come, for medical and surgical treatment. The court holds that, under the authorities, the complainants were clearly entitled to equitable relief, such as was granted.

Requirement in Prosecution for Practicing Medicine Without Authority

(Feige vs. State (Okla.), 142 Pac. R. 1044)

The Court of Criminal Appeals of Oklahoma reverses a judgment against Feige, who had been convicted of practicing medicine without first having procured a proper certificate as provided by law, and had been fined, the case being remanded to the county court with directions to cause a proper information to be filed and the trial proceeded with as provided by law. The court says that, under Section 6910 of the Revised Laws of Oklahoma of 1910, a person who prescribes or administers any drug or medicine, included in the materia medica, for the treatment of diseases, injuries, or deformities of human beings is subject to prosecution. Likewise, one who is not licensed to practice medicine as provided by law can be prosecuted for publicly professing himself to be a physician and prescribing for the sick. The information, however, should be direct and certain as to which of these provisions the state is prosecuting under.

The information in this case charged that Feige did, in Oklahoma County, on May 28, 1912, commit the crime of practicing medicine without a license in that he did then and there unlawfully, etc., practice medicine without first having obtained from the state board of medical examiners a certificate as provided by law, entitling him to practice medicine within the state of Oklahoma, in that he did then and there unlawfully and willfully prescribe for, and furnish medicine to, and treat one Cornelius A. Prohl, for compensation, contrary to the form of the statutes, etc. The information on its face was wholly insufficient. It should have charged, among other things, the administration of some drug included in materia medica in the treatment of diseases, etc., or that the accused publicly professed to be a physician and prescribed for the sick.

This prosecution was meritorious, but this court cannot overlook a fundamental right. The trial court should have arrested the judgment and directed the prosecuting attorney to file a proper information, when a motion was made in arrest of judgment, as an information which fails to state a public offense under the statute is subject to attack by a motion in arrest of judgment.

Miscellany

Trachoma in the Mountain Sections of Eastern Tennessee and Northern Georgia

A survey of the prevalence of trachoma in the mining and mountain rural sections of the Appalachians traversing Tennessee and Georgia, made under the direction of the Surgeon-General of the United States Public Health Service and in cooperation with the state boards of health of Tennessee and Georgia, is described in *Public Health Reports* for September 18. The work was begun in eastern Tennessee in December, 1913, and concluded in northern Georgia in April, 1914. The object was not to detect every case of trachoma, but to outline the areas of infection by examination of a representative number of persons in each county, to devise means for its control and ultimate eradication, and to arouse the medical profession and the public to a sense of its importance.

It was found impracticable to conduct house-to-house inspections, because of the time consumed and the impossibility of finding adults willing or able to spare the time to be examined. The examinations were therefore confined almost exclusively to schoolchildren. In Tennessee 130 schools distributed through thirty-one counties were visited and over 15,700 pupils and instructors examined; 341 cases of trachoma were found. In northern Georgia eighty-four schools distributed through twenty-five counties were visited and over 7,800 pupils and instructors examined; seven cases of trachoma were found. The attention of county health officers and local physicians was drawn to the disease wherever it was found. Only positive cases presenting clinically characteristic connective tissue hyperplasia with lymphoid cell proliferation, destruction of the overlying conjunctiva and scar tissue formation were considered as trachoma, suspicious cases (probably incipient trachoma) were not included in the statistics. The type of trachoma found in Tennessee and Georgia was, in the main, less severe than that found by Surgeon McMullen in the survey of Kentucky. Negroes, though not immune, appeared to be less susceptible to infection than whites. The foreign population of the state is small and this element is believed to be a negligible factor in the spread of the disease.

Physical Condition of Chinese Students

The Yale Mission, Changsha, China, has examined all the students of the school under the same system as that used at Yale. The percentages of medical examinations were the following: The general physical condition of 25 per cent. was poor, while that of 53 per cent. was only fair. In muscular development the percentages were: poor, 39 per cent.; fair, 41 per cent.; good, 20 per cent. Nutrition and fatty tissue were subnormal in 27 per cent. and only fair in 46 per cent. Examinations for digestion showed 33 per cent. poor, 25 per cent. fair and in 74 per cent. the presence of Ascaris eggs. Unhealthy conditions in the respiratory system were noticeably prevalent. The vision of 40 per cent. was defective. In the circulatory system a thickening of the vessels was noticeable in 49 per cent., which is abnormal for an average of 18 years, 6 months. Thirteen per cent. had some enlargement of the heart, while 20 per cent. had either murmurs, or other signs of irritability. Beginning at 5 feet 2 inches, comparisons were made between the Yale students and those of the Chinese mission at nine intervening heights up to 5 feet 8½ inches and the differences in measurements for all heights were averaged. Chinese students average less than Yale students in most measurements. The results indicate that the physical condition of the Chinese people generally is defective.

Society Proceedings

COMING MEETINGS

American Association of Anatomists, St. Louis, Dec. 28-30.
American Physiological Society, St. Louis, Dec. 27-30.
Amer. Public Health Association, Jacksonville, Fla., Nov. 30-Dec. 5.
Medical Society of Hawaii, Honolulu, Nov. 28-30.
Society of American Bacteriologists, Philadelphia, Dec. 29-31.
Southern Surgical and Gynecological Assn., Asheville, N. C., Dec. 15-17.
Western Surgical Association, Denver, Dec. 18-19.

NEW YORK NEUROLOGICAL SOCIETY

Meeting held Oct. 6, 1914

The President, Dr. Smith Ely Jelliffe, in the Chair

Double Cervical Rib Nerve Symptoms

Dr. S. P. Goodhart and Dr. Alfred S. Taylor: The patient was a woman, aged 30. Symptoms referable to the cervical ribs dated apparently from the eighth year. During her eighteenth year she noticed that certain movements necessitating placing the arm behind her caused flexor spasm of the muscles of the forearm and hand. When the patient was 23 years old she observed weakness in the grasp and in the finer movements of the left hand, followed by progressive atrophy of the small hand muscles, both the thenar and hypothenar surfaces being involved. Soon afterward a coldness of the left upper extremity, particularly from the elbow to the finger tips, was at times felt subjectively and could be demonstrated objectively. Examination revealed areas of hypesthesia and hyperalgesia distributed irregularly over the left forearm and hand. These areas varied and finally disappeared, leaving as the only sensory disturbance an area of hypesthesia for all forms of sensation in that part of the forearm and hand corresponding to the inner cord of the brachial plexus, particularly the ulnar distribution. At this time the left hand presented an appearance of the typical *main en griffe*, and some atrophy of the pectoral muscles was noted. Cervical ribs were now recognized. About 1907, involvement of the brachial plexus on the right side developed. Within the next few months numbness of the entire right leg and pains in the calf muscles were experienced. In May, 1908, the patient submitted to an operation for the removal of both false ribs. The subclavian artery crossed the first rib anteriorly and below the distal end of the cervical rib, the roots of the plexus lying over the false rib. The eighth cervical and first dorsal roots were undergoing the greatest tension and pressure. Immediately following the operation there was a paralysis of nearly all the muscles and the sensory surfaces supplied by the plexus on both sides. In the course of a week, motion and sensation began to return, and the improvement, though slow, was constant. About one year after the operation there was still considerable atrophy and very slight sensory changes over the inner surface of the forearm. At the present time, about six years after the operation, there is marked improvement in the muscle supply.

Spinal Hematomyelia of the Hemiplegic Type

Dr. Frederick Tilney and Dr. C. L. Nichols, Brooklyn: The patient, a man aged 28, while diving in shallow water, fell into the water almost perpendicularly. He thought he struck the sandy bottom on his head, neck or on the vertex, posteriorly. He had to be dragged from the water and was found to be suffering from a complete paralysis of the right upper and lower extremities, and an awkwardness in the use of the limbs on the opposite side. There had been no loss of consciousness and he was perfectly oriented. His head was numb and the whole body felt bruised and sore. The pain was most severe over the right shoulder, extending down the arm and forearm. There were no spasmodic movements in this area. Several hours after the injury he still complained of the sensation of having been bruised, especially over the right clavicle and upper chest. The right pupil was smaller than the left: both responded to light and accommodation. The heart's action was slow and regular and the sounds of good character. The pulse was of fair quality and volume. The abdomen showed no abnormalities. No reflexes could be elicited on the right side, and sensation was absent, with the exception of variable areas of response to pin prick. The field of vision was undisturbed. The fundus showed slight congestion of the nerve; the margin was not well defined and the vessels were slightly engorged, evidencing some pressure. The hearing was affected on both sides. One week later, the anisocoria was still more apparent. Two weeks later he was allowed to sit in a chair and ten days after that he was able to walk.

On the first day after his discharge he had an agonizing pain on the right side of the head over an area extending from the forehead along the vertex in the median line to the occiput. This persisted for two hours. A similar attack, less severe, followed a week later. After the patient had been seated for any length of time he became stiff in the right hip, and on arising had a dull pain extending from the lower part of the spine forward into the right groin. He also complained of a similar pain extending from the cervical spine to the right shoulder. There were no urinary symptoms. The bowels had moved regularly ever since the accident. Examination at the present time shows a flaccid paralysis of the right upper extremity and a spastic paralysis of the right lower extremity. The tendon reflexes on this side were greater than those on the left, while the abdominal, epigastric and cremasteric reflexes were absent. The latter were present on the left side. The Babinski was positive on the right side, and there was permanent clonus in the ankle. In eliciting the triceps reflex on the right side, percussion on either the tendon or the muscle produced flexion of the forearm instead of extension. The roentgenogram showed a fracture of the sixth cervical vertebra.

Case of Spinal Hematomyelia: Brown-Séquard Paralysis

Dr. Tilney and Dr. Nichols: The patient, a boy of 20, fell a distance of about 10 feet, striking the ground on his chest without losing consciousness. None of the extremities could be moved voluntarily. The pupils were equal, and reacted naturally. The pulse was regular and of good volume. The heart sounds were normal. The respiration was chiefly abdominal, the chest moving very little. The arms could be moved, though very slowly and with great difficulty. The fingers were held in a position of partial flexion, with no power either to flex or extend them. The knee-jerk was absent on the right side and present on the left. The Babinski could not be elicited. The toes of the right foot were red; those of the left were pale, and the surface temperature of the left lower extremity was diminished. There was an absence of the cremasteric reflex. There was tactile anesthesia in both lower extremities and in the trunk up to the second interspace. Pain sense was absent in the left leg and as far up as the third rib, but present over a corresponding area on the opposite half of the body, where it was apparently hyperacute. The temperature discrimination was entirely absent on the left side to a level a little below the clavicle, but was present on the right side, although the response to heat was not so good as to cold. There were sticking pains in the right leg, and the patient felt as though there was a strap around it and another around the shoulders, each being tightened in an opposite direction. There were fibrillary tremors on the left side. Priapism was present during the examination. Catheterization showed no evidence of hematuria. One month later the patient had a slight power of flexion of the left fingers. Sensation was unchanged. The pupils reacted promptly, but were unequal. The patellar reflex on the right side was exaggerated. One week later there was an involuntary urination. Up to that time catheterization had been necessary, but from that time on the control of the bladder was normal. The lesion in this case was located in the upper cervical region. The roentgenogram demonstrated absence of fracture or dislocation.

DISCUSSION

Dr. William M. Leszynsky: In cases of traumatic lesions of the cord the question of operation usually comes up, and I have been guided largely by the clinical manifestations. If it can be shown that we were dealing with a fracture dislocation producing crushing of the cord, an operation is inadvisable. When blood is found in the cerebrospinal fluid, the hemorrhage is usually subdural. When the cerebrospinal fluid is clear, as in hematomyelia, operation is not indicated. In many of these cases the early residual symptoms often become permanent, their severity depending on the amount of damage done to the cord. It is impossible to give a positive prognosis as to the ultimate outcome.

Dr. Benjamin Rosenbluth: I have seen four cases of injury of the cauda equina, and the result of operation was most encouraging.

Dr. J. F. Terriberry: In cases of hemorrhages within the cord, little can be expected from operative interference. These cases, as a rule, do much better under proper general care, with subsequent reeducation of the lost muscular function if the residual symptoms demand it. The fact should be borne in mind that this loss of function is sometimes attributable to a stiffening of the joints of the hands and fingers, which often does much to retard the reparative process, and it was only with care and perseverance that one could get the most out of these cases.

MEDICAL SOCIETY OF VIRGINIA

Annual Meeting, held in Washington, D. C., Oct. 27-30, 1914

The President, Dr. Southgate Leigh, Norfolk, in the Chair

Officers Elected

The following officers were elected for the ensuing year: president, Dr. Samuel Lile, Lynchburg; vice-presidents, Drs. Samuel B. Moore, Alexandria, Joseph T. Buxton, Newport News, and Dr. J. W. Preston, Roanoke.

Place of meeting, session of 1915, Richmond.

SYMPOSIUM ON GOITER

Causes of Thyroid Diseases

Dr. R. M. Taliaferro, Lynchburg: The endemic form of goiter is believed to be the lack of something, mineral or albuminoid. It is asserted that the addition of Lugol's solution to the water-supply will cure. No country is exempt. It is closely associated with the generative organs in females; puberty, menstruation, menopause and especially pregnancy especially seeming to have some influence. Various toxemias have been associated, and there seems to be an effort of the body to have the metabolism meet the toxins.

Pathology and Symptoms

Dr. J. C. Flippin, Charlottesville: The high percentage of iodin in the thyroid is very important. The thyroid of the fetus and the suckling animal probably contain no iodin. The iodin percentage is below normal in the diseased gland, while in exophthalmic goiter it is as much as 80 per cent. above normal. A certain relation to the other internal secretions exists. The epinephrin content is increased in exophthalmic goiter.

Medical Treatment

Dr. George W. McAllister, Hampton: Iodin in the sporadic form gives the best results. No one factor is of so much importance as rest in the open air. I have been disappointed in the action of the extracts of ductless glands. Parathyroid sometimes controls the tremor. As to the benefit from the use of serums from thyroidectomized animals, testimony is conflicting.

Surgical Treatment

Dr. J. S. Horsley, Richmond: Surgical treatment is of value in simple cases, malignant cases and in hyperthyroidism. In the hands of a competent man the mortality in simple cases should be less than 1 per cent. Surgical treatment is now practically limited to tying one or more arteries or to thyroidectomy. Two rules are of prime importance: Avoid exciting the patient, and use careful manipulations.

DISCUSSION

Dr. Tom Williams, Washington, D. C.: Enlarged thyroids may be due to toxemias, the result of multiple infections. I do not believe that it is always wise to remove the gland. The Roentgen ray inhibits the action of the gland and renders the patient comfortable.

Dr. Allison Hodges, Richmond: In the majority of cases we are wasting time by using medical measures. Of twenty-two patients only four were definitely improved in from three to eight weeks. Of the other patients twelve were operated on by surgeons, and eight were cured while four were partly cured. I am not anxious to submit these cases to the surgeons, but we should do what is best. The surgical cases in which there was no improvement were those in which excessive anxiety was associated. Do not protract medical treatment.

Calcification and Ossification of Walls of Heart

Dr. Harry T. Marshall, University: A man died of heart failure. During life he had a murmur and myocardial insufficiency. The heart was much enlarged, hypertrophied to the left and both dilated and hypertrophied to the right. The left auricle was encased in a firm calcified sheath, which could not be collapsed by pressure. The muscle was unaffected. The endothelium was thickened from 1 mm. to half an inch, with ridges on the lining looking like loose bone. Lacunae and osteoblastic cells were to be seen, and unmistakable bone-marrow.

Psychoneuroses in Their Relation to Chronic Infections

Dr. Allison Hodges, Richmond: Physicians do not always respect such influences as heredity and environment. A number of morbid conditions are apparently functional. Study the personal abnormalities of the patient. They have either a psychogenic or a somatic basis. In all cases that I have records of there is the element of heredity. There is physical suffering in the psychoneurotic, properly speaking. I have not found organic troubles to be a cause as often as I had anticipated. Woman is especially apt to think the uterus is the cause, and if this is so stated by the physician she is confirmed in her distress. Urethra and seminal vesicle disease in the male is likewise a source of disturbance. Gastro-intestinal disturbances are an unquestionable cause of psychoneuroses. Gall-bladder infections play only a minor part. The large majority of these troubles are purely in the brain. Rational treatment is the removal of the cause.

Use and Abuse of Pituitary Extract in Labor

Dr. Virginius Harrison, Richmond: The forceps is not abused so much as formerly. Posterior lobe extract has been brought forward as a substitute for forceps. This drug has been standardized. This is important, for we may be using 1 or 2 mg. to the dose. If much chloroform is given before its administration, the effect is lessened, but if chloroform succeeds it the effect is increased. I have never seen it take more than six minutes before having effect, and this effect lasts from thirty to sixty minutes. If necessary, try the second dose in one hour; if no results, then use other methods. Twenty per cent. of my patients had bowel action without using a laxative. One patient had marked angina pectoris in two minutes; it passed off quickly. One child had convulsions, but they may have been due to injury to the head. It made a good recovery. The contra-indications are normal labor with good pains, high blood-pressure with arteriosclerosis, undilated cervix, and tumors. It will not start pains but will intensify those present. It shortens the third stage of labor, and prevents hemorrhage when given after the delivery of the child. It is capable of doing great damage to the soft parts and to the child. Its action is very prompt and the doctor should be prepared for emergency. Uterine inertia is the thing that will make us use it most frequently. It will convert a high forceps case into a low forceps case. Engagement should occur before it is given. It makes instrumental work easier. It prevents shock and post-partum hemorrhage, and makes anesthesia less in quantity. I have used forceps only three times in my last fifty cases; in my previous fifty cases I used them twelve times. I cannot agree with those who say we must not give it to primiparas; my best results have been with them. I have never seen a child born dead when this agent was used.

DISCUSSION

Dr. Leslie B. Wiggs, Richmond: There are two active principles in the posterior lobe, one a uterine-contracting and the other a blood-pressure raising agent. I think it will inaugurate contractions.

Dr. Greer Baughman, Richmond: I have had three failures; two of these were occiput posterior cases. I use fractional doses, half a decigram, and in half hour another half. I believe it is a substitute for forceps. The os must be completely dilated. It is a dangerous remedy when used wrongly. Passage and passenger should fit.

Dr. J. F. Winn, Richmond: It is a dangerous remedy. I recall a case of rupture of the uterus from this agent, followed by immediate death. We should diagnose accurately the cause of delay before using it. Do not blame a good thing if you do not know how to use it. I have not used it as much as Dr. Harrison has. If there is definite indication for the use of forceps, and you know how to use it, why not use the forceps? Do not take chances.

Dr. W. E. Anderson, Farmville: I class pituitary extract with the knife. It is more important to know when to use it than how. It does not take the place of forceps. You may have better results with forceps than with pituitary extract.

Dr. Virginius Harrison, Richmond: Ergot and pituitary extract are not the same in action and they may be combined in certain cases. There are eight preparations on the market, and we may be using the strong when we think we are using the weak.

Sarcoma of Both Ovaries in a Child of Three Years

Dr. F. H. Smith and Dr. J. C. Motley, Abingdon: A white girl, aged 3 years, giving a history of nausea and vomiting, had a mass in the abdomen, thought to be due to worms. There was great distention unless the bowels acted thoroughly. No fever was noted at any time. In the right iliac fossa was a mass that might have been the appendix. She had a history of having been butted in the abdomen by a goat. Later a mass was found in each iliac region, hard and doughy, not tender. Rectal examination disclosed that there was no connection between the two. Operation was done to relieve what was thought to be intestinal obstruction. Both tumors were removed and found to be sarcoma of the ovary. Five months later the child had an abdominal tumor, in fact several tumors. Death ensued within sixty days.

Caring for Premature Infants

Dr. S. G. T. Grinnan, Richmond: Aeration by osmosis should be tried when ordinary means to revive do not avail. The less the weight the more rapid is the loss of heat. Acid blood is found in premature infants. The electric pad gives uniform heat. Pure air is necessary for the lungs. Temperature must be kept at 90 degrees. Fatty soap is the best. Do not try to cleanse the mouth. Whey may be used when breast milk cannot be had. Evaporated, not condensed, milk may be used.

DISCUSSION

Dr. W. L. Harris, Norfolk: A home-made incubator is what has served me best, a rather deep padded box, with a hot-water bag. These children should not be shocked, and I think they are often killed by bathing. Start the nourishment early. Get milk from another woman if the mother cannot furnish it. Feed the baby according to what it can take. You may have to feed it with a medicine dropper, and ten or twelve times in the twenty-four hours.

Necessity for Study of Fetal Heart Sounds in Placenta Praevia

Dr. Greer Baughman, Richmond: Inability to hear the sounds is generally due to listening at the wrong place or to a dead fetus. The two portions of the fetus transmitting the sounds best are the chest in front or behind over the region of the heart. The fetus gasps because of peeling off of the placenta. The same thing may happen if the cord be compressed intra uterum. Then the fetus breathes in amniotic fluid. The sounds are hard to hear during uterine contractions.

DISCUSSION

Dr. A. T. King, Washington, D. C.: I have looked over the United States census statistics and I find 1,200,000 home obstetric cases to 100,000 hospital cases. This by the way of emphasizing the importance of home obstetrics. Why not give salines under the skin of the child? It is suffering from hemorrhage as well as asphyxia.

Chronic Catarrhal Otitis Media

Dr. C. R. Dufour, Washington, D. C.: Many suicides occur because of terrible noises in the head, beginning insidiously, with a sense of stuffiness. The patient thinks it is due to car-wax. The noises are worse at night, and affect one ear or both. The disease is progressive and rarely clears up of itself. It does not yield readily to treatment. Six months is not too long to treat. Iodin and oils vaporized in the middle ear are good.

DISCUSSION

Dr. George J. Tompkins, Lynchburg: The general practitioner is apt to overlook adenoids. I recall a case in which I found adenoids in which the family physician was satisfied there were none. I was convinced that they caused the trouble.

Dr. W. E. Driver, Norfolk: Deafness due to local conditions in the throat is too simple to talk about. Diseased tonsils and adenoids should be removed. The common idea that you can take your finger and scratch out adenoids is barbarous. The eustachian tube is sometimes permanently stopped by cicatricial contraction.

(To be continued)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia

November, CXLVIII, No. 5, pp. 625-780

1 *Ultimate Results Secured from Surgical Intervention in Cases of Cholelithiasis. J. G. Clark, Philadelphia.
2 *Clinical Study of One Thousand Cases of Cancer of Stomach. J. Friedenwald, Baltimore.
3 Some Clinical Aspects of Gastric Hemorrhage. J. A. Lichty, Pittsburgh.
4 *Laboratory Diagnosis in Early Stages of Congenital Syphilis. C. G. Grulee, Chicago.
5 Modern Methods of Treatment of Syphilis of Nervous System. B. Sachs, I. Strauss and D. J. Kaliski, New York.
6 Heart Syphilis: Report of Case. G. R. Callender, U. S. Army.
7 Duodenal Ulcers in Infancy. Report of Five Cases. B. S. Veeder, St. Louis.
8 Effects of Heredity in Bovine Tuberculosis. H. Brooks, New York.
9 *Examination of Urine for Tubercle Bacilli. J. W. Churchman, New Haven, Conn.
10 *Albumin in Sputum in Tuberculosis: Its Value in Diagnosis and Prognosis. C. H. Cocke, Asheville, N. C.
11 Personality Study of Epileptic Constitution. L. P. Clark, New York.

1. Ultimate Results in Cases of Cholelithiasis.—From a review of 160 cases Clark concludes that simple drainage is all that is necessary in cases of cholelithiasis in which there are no symptoms attributable to the presence of the stones. When the gall-bladder is thickened or greatly dilated, or if it is the seat of the so-called "strawberry change," as described by Moynihan, cholecystectomy should be the operation of choice. Of fifty-five gall-stone operations not associated with other gynecologic or abdominal conditions, 90 per cent. of results were traced. No patient returned for a second operation, and none had been operated on elsewhere. Of this number 69.5 per cent. were cured, 15.2 per cent. were greatly improved, and 2.1 per cent. were not improved. Of the entire number, 8.6 per cent. died after leaving the hospital from extraneous conditions not connected with the surgical operation.

Of seventy-seven cases of cholelithiasis with symptoms associated with other abdominal or gynecologic lesions 78 per cent. were traced; 59.7 per cent. were cured, 17.5 per cent. were greatly improved, 1.7 per cent. were slightly improved and 8.7 per cent. were unimproved. Since leaving the hospital, 3.5 per cent. died of intercurrent diseases not connected with the biliary operation. Of thirty-one cases of cholelithiasis without assignable symptoms associated with other abdominal or gynecologic conditions 86 per cent. of the patients were traced, 64 per cent. were cured, 16 per cent. were greatly improved, 4 per cent. were slightly improved and 8 per cent. (2 cases—both excessively neurotic) were worse than they had been before operation. It is specially noteworthy that in the second class of cases, in which there were unquestionable symptoms of diseases of the upper abdominal organs, in 13 there were visible changes in the appendices, ranging from mild to acute inflammations. Thus the error in diagnosis falls chiefly between appendicitis and cholecystitis. In several of these cases the condition of the appendix gave rise to the acute symptoms which had precipitated the operation.

From this analysis Clark learned that the worst results occur among the combined cases in which there are manifest symptoms due to biliary changes. The ratio of the cures is in direct proportion to the severity of the symptoms. The weight of evidence most emphatically favors the early removal of gall-stones. The mortality will be small, the proportion of cures large and the hazard of a return of the patient to the hospital for a second operation slight. In the light of the results secured in this large series of cases Clark believes that his stand of a decade ago, which favors the removal of gall-stones associated with other gynecologic or abdominal lesions, whether they are producing symptoms or not, is amply sustained.

2. **Cancer of Stomach.**—The 1,000 cases of cancer analyzed by Friedenwald occurred in 10,416 patients affected with various gastric disturbances (9.6 per cent.); the maximum liability to the disease lies between the fortieth and sixtieth year (65 per cent.); the greater proportion of cases occur in males; 588 males to 412 females. An hereditary history of cancer appearing in various portions of the body occurred in 104 of the 1,000 cases (9.4 per cent.). A definite history of trauma was elicited in 19 cases, in 6 of which there had been blows on the abdomen. In 229 cases in which hemoglobin estimations had been recorded, anemia was present in 189 (82 per cent.). The average of the hemoglobin estimations was 43. Chronic endocarditis was present in 114 cases (11.4 per cent.); arteriosclerosis in 696 (69.6 per cent.) of all cases. Of the 132 cases in which blood-pressure examinations were recorded, 121 (91 per cent.) present readings of 170 mm. or more. Albumin was present in 401 (55.9 per cent.), and albumin and casts in 334 (46.4 per cent.).

In the 1,000 cases of cancer there was a history of some previous digestive trouble in 232 cases (23.2 per cent.). Seventy-three cases gave a definite history of former gastric ulcer. A history of former indiscretions in diet was obtained in 321 instances (32.1 per cent.); a history of alcoholism was obtained in 152 instances (15.2 per cent.). A history of syphilis was obtained in 79 instances; tuberculosis of the lungs was present in 48 instances. Over 89 per cent. of the cases presented an entire absence of free hydrochloric acid. Lactic acid was present in 601 instances, or 81.9 per cent. of the 733 cases in which the gastric secretion was examined. The Oppler-Boas bacillus was observed in 582 cases, or 79.3 per cent., of the 733 cases. It was found only in those instances in which lactic acid was observed. Sarcina were observed in 24 instances (32 per cent.). Visible blood was observed in the gastric contents in 129 instances (7.5 per cent.). Coffee-ground contents was obtained in 653 instances (61.8 per cent.). Roentgen-ray examinations were made in 32 instances, 8 cases presenting cancer at the cardiac region and 24 at the pyloric region. Anorexia and vomiting are most prominent symptoms, being present in 89 per cent. of cases. Hematemesis is present in 25 per cent. of all cases and melena in 19 per cent. Occult blood appears in the stools in 92.5 per cent. The tumor was sufficiently advanced to be palpable in 72 per cent. of cases, but only in 30 per cent. of these cases within a half year of the first appearance of symptoms, while in 60 per cent. of cases this symptom was manifested after the first six months. Clinically in 60 per cent. of cases the cancer is located at the pyloric area, in 7 per cent. at the cardiac area, and in 30 per cent. there is a general involvement.

Operations were performed in 266 instances (26.6 per cent.). Of these 138 (51.8 per cent.) were exploratory operations. Gastro-enterostomies were performed in 98 (36.9 per cent.); gastrostomies in 25 (7.8 per cent.), and pylorectomies and gastrectomies in 9 (3.3 per cent.). Of these there is not one patient living. It is therefore evident that the early diagnosis of cancer of the stomach is still fraught with difficulty, and that until more certain methods are available exploratory incisions should be urged on all persons over 40 years of age having gastric symptoms which are not relieved after a few weeks' treatment, especially is this the case if there be some loss of flesh, an absence of free hydrochloric acid in the gastric contents, and occult blood in the stools. Inasmuch as in a certain proportion of cases gastric ulcers become cancerous, it is well in all operations for gastric ulcers to consider the advisability of performing excision or partial gastrectomy to prevent possibility of the transition of ulcer into cancer.

4. **Laboratory Diagnosis in Congenital Syphilis.**—According to Grulee there is no test which is proved to be pathognomonic of congenital syphilis in the early stages between the birth and the development of active symptoms. The Lange gold chlorid reaction on the cerebrospinal fluid offers at present some hope that the evidence obtained in this way may be of distinct benefit. The Noguchi luetin test has a distinctly negative value, inasmuch as in all cases not syphilitic the reaction was negative.

9. **Examination of Urine for Tubercle Bacilli.**—The important point brought out by Churchman is the fact that in vesical tuberculosis, if the ulcer is on the vault of the bladder, in which it is seldom or never reached by the small amounts of urine present there at any one time, tubercle bacilli may quite readily be absent from the urine, or at least not present in great number. In such cases, therefore, and indeed in all cases of vesical tuberculosis one should add to the catheterized urine to be examined for the organisms, washings from the bladder surface. In obtaining these washings it is advisable to allow fluid to flow in until the bladder is distinctly distended, so as to obtain material from its whole surface.

10. **Albumin in Sputum in Tuberculosis.**—Cocke has collected from the literature the results of the analyses of 3,951 cases in all stages (not including 20 of his own), in which there was a positive albumin reaction in the sputum in 3,778, or 95.6 per cent. These cases were all definitely known at the time or later proved to be tuberculosis, so that the conclusion is inevitable that the large majority of all cases of tuberculosis show a *positive* albumin reaction in the sputum.

Archives of Pediatrics, New York

October, XXXI, No. 10, pp. 721-800

12 *Some Manifestations of Influenza in Young Children. L. E. Holt, New York.
13 *Causes and Treatment of Eczema in Infancy and Childhood. R. G. Freeman, New York.
14 Recurrent Bronchitis in Children. C. G. Kerley, New York.
15 Effect of Sugars on Gastric Secretions in Infants. D. H. Sherman and H. R. Johnes, Buffalo.
16 Boston Floating Hospital. J. H. Young, Newton, Mass.
17 Roentgen Ray as Diagnostic Help to Pediatrist. L. E. La Fétra, New York.
18 Three Cases of Diabetes Mellitus in One Family. C. G. Moore, Schuyler, Neb.

12. **Manifestations of Influenza in Young Children.**—One thousand six hundred and fifty sputum cultures made from 1,053 patients during the winter and spring seasons of the past five years period showed that the influenza bacillus was present in from 32.5 to 42 per cent. of the cases. Holt believes that this accounts for many obscure symptoms seen in these patients. On two successive days in April sputum cultures were made from all the hospital inmates—doctors, nurses and patients. Of 90 persons examined, 31 showed the presence of influenza and 3 others had shown it previously, making a total of 34 infected persons, or 38 per cent.

The most marked prevalence of influenza was in the wards in which the patients with bronchitis and pneumonia were received. In two such wards, containing 21 patients, 10 had influenza. Of 8 nurses in attendance in these wards, 5 showed influenza. Six of the patients were suffering from bronchopneumonia, 3 others previously had slight temperatures not explained by the other symptoms present; a fourth patient, one of tuberculous meningitis showed only a few influenza organisms. Two nurses had no symptoms suggesting influenza infection, but one shortly after the culture was taken developed a severe cold; the other three were suffering from catarrhal symptoms of various degrees of severity.

A nurse in charge of a special ward containing 3 children who were suffering from influenza, showed the organism in the sputum. She had previously suffered from a mild cold. Of the remaining 25 nurses in the hospital only 4 showed the *B. influenza*, and 3 of these had suffered from colds or a nasopharyngeal infection. The resident physician had a severe paroxysmal cough and his sputum showed great numbers of influenza bacilli. Of 10 cases of pneumonia in the hospital at the time of the routine examination the sputum of 8 showed the *B. Influenza*. Of 8 children admitted with pneumonia during the week following, 5 gave positive influenza cultures. Since the number of children admitted with influenza is so large the presumption is that the nurses contracted it from these children and then possibly spread the infection to others.

An unusual prevalence of influenza has been noted in some other institutions in the city in which careful sputum cultures have been made. Dr. Swift of the Rockefeller Institute Hospital informed Holt that of 13 pneumonia patients during the first three weeks of April, 8 showed the presence of the *B. influenza* in the sputum cultures. Holt regards the want of correspondence between the general symptoms and the temperature as quite diagnostic. He knows of no disease in which such high temperatures are seen with so few general symptoms as in influenza.

13. **Causes and Treatment of Eczema in Infancy.**—Freeman believes that the eczema of infancy and early childhood, which is occasionally due to external irritation, is usually due to gastro-enteric derangement and must be attacked primarily by correcting that derangement. The food should be cut down to caloric requirements, the ration should be balanced and digestion aided. Stewed fruits and cream should be prohibited. The parts affected should be kept well covered with non-irritating applications.

Boston Medical and Surgical Journal

November 12, CLXXI, No. 20, pp. 731-766

19 *Cancer of Uterus. Possibilities of Cure by Radical Abdominal Operation. F. Cobb, Boston.
20 *Cancer of Rectum. D. F. Jones, Boston.
21 *Cancer of Bladder. A. L. Chute, Boston.
22 Cancer of Prostate. H. Binney, Boston.

19. **Cancer of Uterus.**—In a series of 49 simple abdominal hysterectomies done by numerous men and referred to by Cobb there was an immediate mortality of over 34 per cent. and only 19 per cent. of cures. He concludes from these figures that an abdominal hysterectomy which makes no attempt to dissect the ureters and remove the parametrium, to say nothing of the pelvic glands, cannot be advocated as a safe or reasonable operation for cancer of the cervix because it exposes the patient to increased danger from shock, hemorrhage and peritonitis without making any wider removal of the disease and its lymphatics than in the simple vaginal hysterectomy. There were 40 radical Wertheim hysterectomies including 23 of Cobb's personal cases, with an immediate mortality of 22 per cent. and 50 per cent. of cures. In addition there were 27 abdominal hysterectomies for cancer of the fundus, 7 of which were Cobb's personal cases. The immediate mortality was 4, or 14.8 per cent., and of those cases in which the operation was done over five years before, only 42.8 per cent. were cured.

Summing up, Cobb says, that the extended radical abdominal operation is the method of choice, the method that offers the greatest possibility of cure in cancer of the cervix if done by specially trained men. The earlier the diagnosis is made the greater the chance of cure. Simple vaginal hysterectomy is a safer and better method than simple abdominal hysterectomy in ordinary hands. The extended abdominal operation is contra-indicated in marked adiposity and in feeble patients. Cobb has done the Wertheim operation for cancer of the cervix 34 times with an immediate mortality of 5, or 14.3 per cent. In addition he has done abdominal hysterectomy for cancer of the fundus 7 times with no immediate mortality. Only 6 of the cancer of the cervix cases were done over five years ago, 5 of these patients are alive and well and free from recurrence from five to thirteen years. The cause of death in Cobb's cancer of the cervix operations is as follows: One patient died of peritonitis within forty-eight hours; one in twelve hours of shock; one on the tenth day, cause of death not made out at necropsy; one in the fifth week of iliac thrombophlebitis, and one in the tenth week of intestinal obstruction.

20. **Cancer of Rectum.**—The results obtained in carcinoma of the rectum Jones states depend almost entirely on the character of the growth and its duration, and comparatively little on the operation done. That is, they depend on the vigilance of the patient, and the vigilance and thoroughness of the physician and surgeon. Certain cases in which there is much tenesmus demand a radical operation, even when hopeless, simply for the relief it gives, and which is not obtained in many cases with a simple colostomy. Theoretically, the combined abdominosacral operation is the operation of choice. Practically the mortality is too high except in selected cases. Statistics of late results are not sufficiently good to warrant taking the extra risk in the obese, the feeble, and in men over 50. The combined two-stage operation, if the second stage is done under spinal anesthesia, will give a mortality between 15 and 20 per cent. A serious objection to this operation is the danger of infecting the denuded area with cancer cells brought through the lymphatics from the growth. The Kraske operation is the operation of choice in the obese, the feeble and patients over 60.

21. **Cancer of Bladder.**—Chute believes that so long as a growth is confined to the mucous layer of the bladder there is probably no lymphatic involvement; that the moment it invades the deeper layers we have lymphatic involvement; that when this has taken place the lymphatics of the pelvis must be removed, no matter how small the original focus is, if patients are to be cured. Chute feels that we must accept total cystectomy temporarily at least, as a necessary part of any attempt at radical treatment of malignant disease near the bladder outlet.

California State Journal of Medicine, San Francisco

November, XII, No. 11, pp. 437-478

23 *Early Symptomatology of Subacute Bacterial Endocarditis. E. C. Dickson and R. L. Wilbur, San Francisco.
24 Medical Hospital Bookkeeping. W. R. Dorr, San Francisco.
25 Leukocytic Extract in Treatment of Pneumococcus Infections in Rabbits. A. Meinhard and H. B. Reynolds, Palo Alto.
26 Case of Paroxysmal Hemoglobinuria Treated with Salvarsan; Disappearance of Characteristic Blood Reaction and of Positive Wassermann. W. V. Brem, Los Angeles.
27 Status Lymphaticus. J. M. Brown, Los Angeles.
28 Nasal Conditions Causing Asthma. W. H. Dudley, Los Angeles.
29 Relation of Local Infections to Joint Affections. L. W. Ely, San Francisco.
30 Treatment of Pneumonia with Leukocytic Extract. H. B. Reynolds, Palo Alto.
31 Complications in Cataract Extraction. V. H. Hulen, San Francisco.
32 Prevention of Tuberculosis in Children. T. C. McCleave, Berkeley.

23. **Early Symptomatology of Subacute Bacterial Endocarditis.**—Dickson and Wilbur emphasize the importance of certain manifestations by which an early diagnosis can be made in these cases, such as the painful nodules in the skin, in the occurrence of petechial hemorrhages in the skin, and especially in the mucous membrane of the mouth and in the conjunctiva; in the presence of Gram-positive diplococci in the urine when local cause for them can be excluded; and finally in the demonstration of the characteristic diplostreptococcus in the blood.

Canadian Medical Association Journal, Toronto

November, IV, No. 11, pp. 949-1043

33 Intestinal Stasis. M. Einhorn, New York.
34 Id. A. McPhedran, Toronto.
35 Id. A. Primrose, Toronto.
36 Id. J. M. Elder, Montreal.
37 Id. F. N. G. Starr, Toronto.
38 Ileal Stasis. L. G. Cole, New York.
39 Early Diagnosis and Prognosis of Pulmonary Tuberculosis by Roentgen Methods. A. L. Gray, Richmond, Va.
40 *Subcutaneous Injection of Oxygen. H. O. Howitt, Guelph.

40. **Subcutaneous Injection of Oxygen.**—Howitt's experience with the intramammary injection of oxygen according to Derose which now covers nearly two years, includes the dyspnea of tuberculosis, gas poisoning, pneumonia (lobar and lobular) edema of the lungs, bronchial asthma and operative cases. In no case were any ill effects noticeable, either at the time or afterward. One asthmatic said that it relieved him, but Howitt did not notice appreciable improvement. The oxygen is generated from sodium peroxid coming in contact with water in a closed cylinder, and the gas set free escapes by means of a long rubber tube, at the distal end of which is an aspirating needle which is inserted into the subcutaneous tissue. The tube is then oiled and by a pumping action of the hand, sufficient force is used to raise a lump once or twice as large as the closed fist. The oxygen injected by this method forms a local emphysema which lasts for hours and may travel over the surface of the body. Apparently the body only absorbs that which is necessary. It is really the formation of an artificial lung.

Georgia Medical Association Journal, Augusta

October, IV, No. 6, pp. 167-195

41 *Experimental Study of Abderhalden Test. A. H. Bunce, Atlanta.
42 Whitman's Method of Treatment of Fractured Hip. C. C. Harrold, Macon.
43 *Management of Pregnancy and Normal Labor. B. Moore, Atlanta.
44 Roentgen Ray in Treatment of Skin Cancer. C. Swanson, Atlanta.
45 Present Status of Radium. Report of Case. T. E. Oertel, Augusta.
46 Salvarsan. J. Swafford, Athens.
47 The Prescription. R. C. Wilson, Augusta.
48 Diet as Means of Oral Prophylaxis. M. T. Summerlin, Athens.

41. Abstracted in THE JOURNAL, May 9, p. 1499.

43. Abstracted in THE JOURNAL, May 2, p. 1429.

Journal of Cutaneous Diseases, New York

November, XXXII, No. 11, pp. 751-820

49 *Clinical, Pathologic and Experimental Study of Lesions Produced by Bite of "Black Fly." J. H. Stokes, Ann Arbor, Mich.
50 *External Vaccine Therapy. H. P. Towle, Boston.
51 Autoserotherapy of Certain Diseases of Skin. J. S. Hilario, Manila.
52 Herpes Zoster Following Arsenic. R. C. Finlay, Grace, Miss.

49. **Study of Black Fly Bite.**—To the question as to whether the bites of the black fly are capable of giving rise to constitutional reaction in man, Stokes answers that the temperature in a small child which received twenty-five or more bites in one afternoon, never went above normal, although the lymphadenitis was marked and the child fretful and restless. Several persons under his observation expressed themselves as having felt "tired and stiff all over" after being severely bitten by the flies early in the season. Nothing comparable to the severe reactions described in the literature has come under Stokes' observation.

50. **External Vaccine Therapy.**—Vaccines were used externally by Towle in more than 150 cases. The vaccine containing preparations manifested their therapeutic activity as abundantly and so consistently that long continued experimentation was unnecessary to convince him that it was practicable to obtain vaccine effects by external methods of administration. Of the ordinary fatty substances, the final selection as ointment bases, alone or in combination was, in the order of preference; lanolin, vaselin, cold cream and (for use on the hairy parts) a fat emulsion known as liquid cold cream. Occasionally, one or the other was used alone, but increasing experience gradually led to the more frequent use of combinations.

No fixed formula has been followed. Instead, both composition and proportion have been varied, as the varying conditions in each case seemed to indicate. In a general way, the simplest formula, plus more or less powder, seemed the most useful in the presence of exudative conditions. The composition of the base was varied in accord with the ordinary rules for the use of pastes and ointments. For pastes, starch was ordinarily the substance added to stiffen the base. For ointments, the greatest satisfaction was derived from varying combinations of glycerin, vaselin, distilled water and lanolin, and of olive oil or almond oil, lime-water and vaselin. On the hairy parts, the use of pastes and ointments is inconvenient and frequently undesirable. As a compromise between the frequent use of a greasy but more or less penetrating salve and the more easily applied but superficially acting lotion, a thin emulsion, with cold cream added to give it more body, has been found to be an efficient means of applying vaccines to the scalp and other hairy parts.

Regardless of the form of the base chosen, it was found desirable that the vaccine preparation should be rubbed in with fingers until a considerable portion has disappeared, except in the case of an exudative eruption, in which the broken surface of the skin facilitates absorption. In the latter, it suffices merely to smear the vaccine preparation over the surface. External vaccine therapy was found the most efficient in the treatment of acute inflammation of infections whose seat is superficial, and therefore easily reached from without. Of all infectious processes, the staphylococcic is the most easily influenced by external vaccine therapy. On other infections the effects of external vaccine treatment are less marked, and in the various forms vary considerably.

Journal of Nervous and Mental Disease, Lancaster, Pa.

November, XLI, No. 11, pp. 681-744

53 *New (Familial) Form of Progressive Spinal Myopathy. C. L. Dana, New York.
54 *Spinal Fluid Cell Counts in Untreated Cases of Cerebrospinal Syphilis. H. W. Mitchell, I. A. Darling and P. B. Newcomb, Warren.
55 Psychoses Among Negroes. E. M. Green, Milledgeville, Ga.
56 Cerebellar Syndrome of Babinski. Report of Case. H. K. Marks, New York.

53. **New Form of Spinal Myopathy.**—Dana cites a case occurring at the age of 53, in a family in which ten cases were known to have developed in three generations. The clinical history shows that its course is like that of a disease which destroys one group of spinal motor cells one after another. It is not a slowly developing atrophy followed by paralysis, but a rather sudden paralysis followed by atrophy. The disease progresses and the patient dies in a period of about one year. The patient's maternal grandmother had the same disease and died of it in her forty-first year. Maternal grandfather healthy. There were three children borne by her mother. One died at birth and one, a sister of the patient, died at 47 of gastric ulcer. Her mother died of this progressive paralysis at the age of 47. In her case the disease began in the fingers and then went to the legs and throat and the whole trouble lasted a year. The mother had three sisters who died of the same trouble, one at the age of 52, one at 42 and one at 37. In two of these cases the trouble began in the arms and in one case in the legs. In all cases the disease progressed upward. The mother had a brother whose son developed the trouble at the age of 35. She had two other sisters who did not have the disease, each married and had healthy children. Four are known to be living at ages of 50 to 60. In addition to this, three sons of the grandmother's sister died of the family disease.

54. **Spinal Fluid Cell Counts in Syphilis.**—In a review of thirty-four cases a count of three or less was found at some time in all but two, both far advanced paretics. Seven of the cases showing high average counts were paretics exhibiting excitable, grandiose tendencies during the period they were under observation, but similar results were also found in cases showing pronounced dementia and comparative remission of active symptoms. High counts were found in all stages of the disease, from the first to the tenth year of well defined paretic symptoms. In several cases very great variation was shown in the counts at two weeks' intervals without any appreciable changes in the patients' symptoms. Low average counts were also found to occur in all stages

of the disease. Of ten patients with the highest count below twenty, seven are dead or bedridden, two show remission of active symptoms and one is ambulant but much demented. The period of the disease in these cases varied from the first to the thirteenth year.

The authors conclude that great variation in the cell count may be found at short intervals in any stage of the disease. Both high and low average counts persist for months at a time in various stages of the disease. A low or falling count is common but not universal before death. A reduction in the cell count to the normal limit frequently occurs in progressive, untreated cases at any time during the course of the disease. The reduced cell count, accompanied with persistence of a positive Wassermann in the fluid, cannot be regarded as having valuable prognostic significance.

Kentucky Medical Journal, Bowling Green

November 1, XII, No. 21, pp. 651-702

57 Serodiagnosis of Pregnancy. H. J. Farbach, Louisville.

Lancet-Clinic, Cincinnati

October 31, CXII, No. 18, pp. 471-498

58 Inebriety in Old Age. T. D. Crothers, Hartford.
59 Extraction of Steel and Iron Particles from Eye by Electromagnet. V. Ray, Cincinnati.
60 Inflammation of Accessory Sinuses. C. R. Holmes, Cincinnati.
61 *Mediastinal Tumor. J. E. Pirrung, Cincinnati.*

November 7, No. 19, pp. 449-522

62 *Is Genius a Matter of Chemistry? J. A. Hagemann, Pittsburgh.*
63 Enlargement of Thyroid Treated with Epinephrin. Report of Case. H. J. Phillips, Louisville, Ky.
64 Acute Perforation of Stomach with Spontaneous Recovery. J. H. Schroeder, Cincinnati.
65 Dermatitis Herpetiformis (Duhring) Associated with Pigmentation and Keratoses. M. Scholtz, Cincinnati.
66 Huntington's Chorea *Synonyms*—Chorea Chronica Progressiva, Chorea Hereditaria, Dementia Choreica. H. H. Hoppe, Cincinnati.

Medical Record, New York

November 14, LXXXVI, No. 20, pp. 825-866

67 *Toxic Diseases of Nervous System. *Report of Case.* E. D. Fisher, New York.
68 Cholera in Philippines During 1913. V. G. Heiser, Manila.
69 Faculty of Medicine in Original University of Louvain, 1426-1797. J. B. Stein, New York.
70 Case of Thrombo-Angeitis; Wassermann Long Negative now Positive. W. C. Lusk, New York.
71 Necessity for Broader Conceptions in Gastro-Enterology. C. S. Fischer, New York.
72 Mistakes Made in Taking and Interpreting Blood-Pressure Readings. G. Richter, St. Louis.
73 Neurosis and Purpose. G. M. Parker, New York.
74 Painless Parturition. M. W. Kapp, San Jose, Cal.
75 Recovery from Bichlorid of Mercury Poisoning. F. F. Durrah and G. W. White, Washington, D. C.

67. Toxic Diseases of Nervous System.—Four cases are cited by Fisher. The first was a case of ascending paralysis, with attending neuritis, which followed the usual course of extension, later involving the upper extremities and the bulbar nerves, resulting in respiratory failure. The pathologic findings are definite, involving both the peripheral and central nervous system. The course of the disease was longer than that usually described, extending over six weeks, but otherwise the case was typical in its manifestations. The second case was one of a distinct infection of an unknown character, involving the meninges, as shown conclusively by the rigidity of the neck, and the increased cell count in the spinal fluid. The neuritis of the lower extremities, a loss of reflexes, and ascending paralysis suggest a condition of the nature of Landry's paralysis. A third case from the symptoms suggested either some infection involving the membranes at the base of the brain, or basal syphilitic meningitis. The necropsy showed, however, a sarcomatous basilar meningitis. Small bodies resembling tubercles were found scattered over the meninges and the base of the brain, and two small tumors were found in the frontal lobes, incapable of causing any symptoms. There was also a secondary involvement of the liver and spleen. The fourth case did not correspond to syphilis of the nervous system nor did it respond to antisyphilitic treatment. There was evidently an acute affection of the nervous system, cord and bulb, suggesting acute ascending paralysis or poliomyelitis. Fisher suggests that possibly we may in the future put many of these cases of myelitis or primary lateral sclerosis down to toxic agents, especially when, as in one of these cases, there was no evidence of syphilis.

Michigan State Medical Society Journal, Grand Rapids

November, XII, No. 11, pp. 635-680

76 Suggestions as to Origin and Remedy of *Malpractice Actions.* H. V. Barbour, Detroit.
77 Syphilis in Relation to Certain Nervous Disorders. W. Taylor, Detroit.
78 *Treatment of Luetic Diseases* of Nervous System. C. W. Hitchcock, Detroit.
79 Infantile Sensitization to Egg-Albumin. H. M. Rich, Detroit.
80 Diagnosis and Treatment of Acute Appendicitis and Its Complications. C. D. Brooks, Detroit.

Modern Hospital, St. Louis

November, III, No. 5, pp. 283-350

81 Insurance Company Seeking to Improve Individual and Public Health. L. K. Frankel, New York.
82 Hospital Records. *J. B. Howland, Boston.*
83 First Aid Hospitals in Coal Mines. D. H. Lake, Kingston, Pa.
84 Fire Protection and Fire Drills in Hospitals. H. F. J. Porter, New York.
85 Lunches for School Children. E. F. Brown, New York.
86 *How Nurses May Contribute Toward Hospital's Success.* A. Beers, Fairfield, Ia.
87 Feeding the Hospital—Food. L. Graves, Cleveland.

New Mexico Medical Journal, Las Cruces

October, XIII, No. 1, pp. 1-40

88 Eugenics. H. B. Kauffmann, Albuquerque.
89 Be a Man. C. M. Mayes, Roswell.
90 Snake Poisoning; Symptoms and Treatment. A. J. Evans, Elida.
91 Cholelithiasis. *W. T. Joyner, Roswell.*

New Orleans Medical and Surgical Journal

November, LXVII, No. 5, pp. 419-502

92 Bacteriology and Pathology of Bubonic Plague. H. W. Wade, New Orleans.
93 Cystitis—An Over-Worked Diagnosis. A. Nelken, New Orleans.
94 *Efficacy of Vaccines in Treatment of Chronic Diphtheria Carriers.* A. I. Weil, New Orleans.
95 Surgical Surprises. M. J. Gelpi, New Orleans.
96 Acetone, Acetonuria, Acidosis, Acid Intoxication. E. D. Fenner, New Orleans.
97 Subcutaneous Traumatic Rupture of Gall-Bladder. L. A. Fortier, New Orleans.
98 *Medical Aspects of Hodgkin's Disease.* C. L. Eshleman, New Orleans.
99 Eosinophilia in Anaphylactic Reactions. F. M. Johns, New Orleans.
100 *Specific Cause and Specific Cure of Pyorrhea Alveolaris or Riggs' Disease. C. C. Bass and F. M. Johns, New Orleans.

100. Pyorrhea Alveolaris or Rigg's Disease.—In August, 1914, Bass and Johns found amebas in a stained preparation of pus from a case of pyorrhea alveolaris. They examined specimens from six other cases. Apparently the same species of ameba was found in each of the seven cases. Their close resemblance to the entameba of amebic dysentery and the marked specific favorable influence of treatment with ipecac and emetin in amebic dysentery led them to expect that the same effect might be exerted on this form of amebic disease also. They began treating patients with emetin hypodermatically. They examined material from the lesions in eighty-seven cases of pyorrhea and found ameba in eighty-five of them. One of the negative cases was a single slide prepared a distance from the laboratory, from the gum of a patient who was convalescing from plague. Pus could be squeezed from her gums and the diagnosis of pyorrhea alveolaris seemed indicated. The other negative case was that of a 13-year-old girl with acute gingivitis, involving all the gums, of about eight days' duration. Thorough search failed to show ameba, and the authors now believe this probably was not a case of pyorrhea alveolaris or Rigg's disease.

They also made more than 100 examinations of preparations made from apparently normal gums and teeth, either in the mouths of patients who had the disease involving other teeth, or in people who appeared to have normal gum margins. They have not been able to find amebas in a single instance. They have, however, found them on several occasions in instances in which the gum margin appeared inflamed and diseased. In several instances they found amebas in similarly mildly inflamed and "easy to bleed" gum margins of one or more teeth in patients who had well-advanced Rigg's disease around other teeth. They found amebas around teeth in what they considered to be all the different stages of the disease in the same case, from the slight redness at the gum margin and tendency to bleed easily to the tooth hanging loose in its socket or standing, entirely stripped of gum on the exposed carious bone.

The doses of emetin experimented with have been from ½ to 1 grain. Only one dose was given in a day. Several cases have been given a dose daily for several days. Others were given one or more doses until the amebas disappeared. In several instances no amebas could be found the next day after the first dose was given. In a few, however, they were found the next day after emetin had been given on two successive days. In no case have the authors been able to find amebas the next day after emetin had been given on three successive days. In one instance they found amebas on the fourth day after the last emetin had been given; in another instance on the sixth day; in several instances none could be found after seven days or longer intermission of treatment.

New York Medical Journal

November 14, C, No. 20, pp. 949-996

101 Exophthalmic Goiter. R. S. Fowler, New York.
102 *Artificial Cultivation of Rabies Virus. F. Proescher, Pittsburgh.
103 Topical Employment of Tuberculin. W. W. Babcock, Philadelphia.
104 *Operative Treatment of Contracted and Deformed Hands in Multiple Arthritis. G. R. Elliott, New York.
105 Psychic Complex in Congenital Deformity. D. L. Sohn, New York.
106 Case of Double Compound Fracture. J. Hund, Fredonia, Wis.
107 Narcotic Addiction. P. M. Lichtenstein, New York.
108 Fancies, Facts and Consumption. T. J. Mays, Philadelphia.
109 Study of Methods of Lavage. J. P. Sawyer, Cleveland.
110 Present Situation in Tuberculosis. F. Tice, Chicago.
111 Meningococcic Empyema. Report of Case. A. I. Rubenstone, Philadelphia.

102. **Artificial Cultivation of Rabies Virus.**—Proescher describes his method as follows: Thirty c.c. of sterile, not filtered, sheep serum is filled into large test tubes 2.5 by 15 cm. and incubated for forty-eight hours, to prove the sterility of the serum. A large piece of the brain substance of a rabid animal removed under aseptic precautions is placed in the bottom of each serum tube, the serum sealed with paraffin oil, and the tube closed with a cotton plunger. The tubes can be kept under aerobic conditions. Proescher says that it is advisable to inoculate at least fifty tubes, as few only will show a growth. Typical changes in the culture medium are not noted. Tubes showing gas formation or coagulation of the serum are rejected. The tubes should be kept at least two months under observation and examined every eight or ten days. The first primary culture Proescher obtained was incubated for two months; repeated examinations before did not show any growths. For subcultures, serum bouillon only (one to ten) is used, as in the common culture medium no growths can be obtained. The serum bouillon after twenty-four hours' incubation is homogenous, cloudy, and after several days' incubation shows a granular sediment. The micro-organisms of the primary culture appear after staining with methylenazur in the form of cocci and oval bacilli, varying in size from just visible to 0.2 to 0.3 micron; in the form of diplococci or aggregated in small groups or short chains. With the Gram stain, using carbolfuchsin as counterstain, the larger forms are more or less Gram-positive, while the smaller forms are faintly stained red. The micro-organisms appear after several transplantations in serum bouillon somewhat larger, and the majority of the micro-organisms are Gram-positive. The inoculation of these cultures into rabbits, rats, and a monkey produced typical rabies.

104. **Operative Treatment of Contracted and Deformed Hands.**—The deformities are reduced by Elliott by forcible reduction and open operation combined. Most of the displacements can be corrected by redressing alone. The reduction is made under profound ether or chloroform narcosis. The fingers are taken singly, forcibly breaking down the contracture or hyperextension and redislocation if such exists. If the finger is contracted, it is forcibly hyperextended. The reverse is done in case of hyperextension deformity. All the hand deformities are overcorrected. The hands are placed on splints padded in such a manner as to keep up a continual overcorrection of the deformity. For three or four days the pain is intense and has to be partially controlled by sedatives. Each joint is wrapped in gauze, saturated with a lotion composed of aconite, belladonna, and glycerin. This dressing is extended over the back of the hand considerably above the wrist, and is covered with oiled silk. A very firm bandage is applied, leaving the tips of the fingers exposed. The pressure must be firm enough to prevent much swelling. The gauze is kept wet with the lotion and over this an ice bag is applied. The tips of the fingers offer a control, and undue localized pressure is readily detected. The splint is used for two weeks. The wet dressing is discontinued as soon as the reaction symptoms subside usually in four or five days. When the pain ceases, it does not return. Not infrequently certain deformities will not give way without a cutting operation. Whenever this is necessary, cutting should be done first. After the wounds are healed, redressment can be carried out.

Pennsylvania State Medical Journal, Athens

October, XVIII, No. 1, pp. 1-90

112 Established Values in Dietetics. L. Litchfield, Pittsburgh.
113 Intestinal Stasis in Its Relation to Gastric and Duodenal Ulcer. E. LaPlace, Philadelphia.
114 Sero-Enzymes in Pregnancy and Disease. J. A. Kolmer, Philadelphia.
115 Work of Bureau of Medical Education and Licensure in Relation to State Medicine. J. M. Baldy, Philadelphia.
116 Retention of Urine and Its Treatment. T. C. Stellwagen, Jr., Philadelphia.

United States Naval Medical Bulletin, Washington

October, VIII, No. 4, pp. 541-749

117 Some Prevailing Ideas Regarding Treatment of Tuberculosis. G. B. Crow, U. S. Navy.
118 Training School for Hospital Corps of Navy. F. E. McCullough and J. B. Kaufman, U. S. Navy.
119 Khaki Dye for White Uniforms. W. E. Eaton, U. S. Navy.
120 Some Facts and Some Fancies Regarding the Unity of Yaws and Syphilis. C. S. Butler, U. S. Navy.
121 Quinin Prophylaxis of Malaria. L. W. McGuire, U. S. Navy.
122 Nervous System and Naval Warfare. T. W. Richards, U. S. Navy.
123 Measles. Report of Case. G. F. Freeman, U. S. Navy.
124 Small-Pox and Vaccination. T. W. Raison, U. S. Navy.
125 Rabies. F. X. Koltes, U. S. Navy.
126 Syphilis Aboard Ship. G. F. Cottle, U. S. Navy.
127 Systematic Recording and Treatment of Syphilis. A. M. Fauntleroy and E. H. H. Old, U. S. Navy.
128 Organization and Station Bills of U. S. Naval Hospital Ship "Solace." W. M. Garton, U. S. Navy.
129 Succinimid of Mercury in Pyorrhea Alveolaris. P. G. White, U. S. Navy.
130 Case of Pityriasis Rosea. R. E. Ledbetter, U. S. Navy.
131 Emetine in Treatment of Amebic Abscess of Liver. H. F. Strine and L. Sheldon, Jr., U. S. Navy.
132 Salvarsan in Case of Amebic Dysentery. O. J. Mink, U. S. Navy.
133 Laceration of Subclavian Artery and Complete Severing of Brachial Plexus. H. C. Curl and C. B. Camerer, U. S. Navy.
134 Malarial Infection Complicating Splenectomy. H. F. Strine, U. S. Navy.
135 Case of Gastric Hemorrhage—Operative Interference Impossible. G. E. Robertson, U. S. Navy.
136 Operation for Strangulated Hernia: Report of Case. W. S. Pugh, U. S. Navy.
137 Case of Bronchiectasis with Hypertrophic Pulmonary Osteo-Arthropathy. L. C. Whiteside, U. S. Navy.

Wisconsin Medical Journal, Milwaukee

October, XII, No. 5, pp. 175-216

138 State Medical Society of Wisconsin. C. S. Sheldon, Madison.
139 *Modern Treatment of Syphilis. O. H. Foerster and C. A. Baer, Milwaukee.
140 Diagnosis of Incipient Pulmonary Tuberculosis. L. M. Warfield, Milwaukee.
141 Preparation of Bacterial Vaccines. E. V. Brumbaugh, Milwaukee.
142 Transfusion of Blood. H. M. Brown, Milwaukee.

139. Abstracted in The Journal, Nov. 1, 1913, p. 1657.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Indian Journal of Medical Research, Calcutta

July, II, No. 1, pp. 1-403

1 Invasion of Tissues by Cholera Vibrio; Pneumonia in Cholera. E. D. W. Greig.
2 Lesions of Gall-Bladder and Biliary Passages in Cholera. E. D. W. Greig.

3 *Treatment of Snake-Bite. H. W. *Acton* and *R.* Knowles.
4 *Treatment of Snake-Bite with Potassium Permanganate. W. B. Bannerman.
5 *Pathogenesis of Experimentally Produced Goiter. R. McCarrison.
6 *Experimental Researches on Etiology of Endemic Goiter. R. McCarrison.
7 Summary of Year's Mosquito Work in Colombo. S. P. James.
8 Epidemic or Fulminant Malaria. Part Played by Immunity in Malaria. C. A. Gill.
9 Cinchona Derivatives *Inquiry*. A. C. MacGilchrist.
10 Stygeromyia Maculosa in Madras. W. S. Patton.
11 Classification of Bacteria for Purposes of Water Analysis. J. W. Cornwall.
12 *Study of Experimental Beriberi. R. McCarrison.
13 Parasite of Bat *Malaria*. F. P. Mackie.
14 Flagellate Infection of Sand-Flies. F. P. Mackie.
15 Bursate Nematodes from Indian Elephant. C. Lane.
16 Behavior of Parasite of Indian Kala-Azar in Dog Flea: Canine Kala-Azar and Its Relation to Human Disease. W. S. Patton.

3. **Treatment of Snake-Bite.**—The value of local remedies in snake-bite treatment, according to Acton and Knowles is strictly limited by two factors, the necessity of inoculating the patient with them before a fatal dose of venom has been absorbed, and the fact that only such venom as they happen to come into contact with *in situ* will be destroyed. They must be given before one minimum lethal dose has been absorbed into the circulation. For man, for 10 minimum lethal doses of cobra venom, this period is about ten minutes. The more concentrated and the larger the dose of venom given the shorter is the period available. An efficient ligature increases this time limit. Subcutaneous injection of these remedies in solution gives much better results than does incision and the rubbing in of moistened crystals. If they be given subcutaneously, no incision should be made.

The authors' experiments show that the immediate injection of 10 to 20 c.c. of a 1 to 5 per cent. solution of gold chlorid is the most efficient local remedy. In some cases this measure alone may save life. In others it will reduce to a minimum the amount of venom which has to be dealt with by means of systemic remedies. When brought into contact with large doses of venom in concentrated solution these remedies exert a more intense action than when acting on small doses in dilute solution. In the case of bites on fingers or toes, in which large volumes of fluid cannot be given hypodermically, two lines of procedure are open. Either a complete dissection of the area of the bite should be made and crystals of potassium or preferably of zinc permanganate should be rubbed in. Or an injection of ½ to 1 c.c. of a concentrated solution preferably of gold chlorid, should be made into several sites in the neighborhood of the punctures. Acton and Knowles are inclined to think that the latter method is the better.

The use of ox bile as a solvent improves the action of weak solutions of gold chlorid and iodin trichlorid. A 5 per cent. solution of gold chlorid in ox bile is not of greater value than a corresponding solution in saline. Bile improves the action of strong solution of permanganates but not of weak solutions. On intravenous injection these remedies are said to be not merely useless, but, owing to the danger of their causing intravascular clotting and pulmonary embolism, they are dangerous.

4. **Treatment of Snake-Bite with Potassium Permanganate.**—Bannerman concludes that a dog bitten by a cobra cannot be saved by the local application of powdered potassium permanganate rubbed in after free incision of the bitten place; nor by a similar application of a solution of the powder. It may be saved, however, by the immediate subcutaneous injection of 10 c.c. of a 5 per cent. solution of potassium permanganate; but this solution is so strong that gangrene of all the tissues of the foot is produced. If this treatment be delayed for even two minutes, a fatal result cannot be averted. A dog bitten under natural conditions by a Russell's viper, cannot be saved by the local application of potassium permanganate.

5. **Experimentally Produced Goiter.**—The pathologic process which results in the formation of goiter in rats, McCarrison says, is essentially of a diffuse character. This process initially affects epithelium of the gland giving rise to hypertrophy, hyperplasia and the formation of many new acini, and may ultimately lead to degeneration and death of the parenchyma cells. It is an exaggeration of the normal physiologic process and results primarily in an increased production and an increased absorption of colloid which may be followed by cell-exhaustion as a consequence of overwork and malnutrition. The transition from the physiologic to the pathologic state is very gradual and the line of demarcation between the two is arbitrary. The pathologic changes which result in the development of goiter in rats are the same as in man, and are probably, therefore, due to the same goiterigenous agent or agents. The goiterigenous agent or agents are of the nature of toxins which stimulate the thyroid gland to abnormal activity. The toxic agent or agents of endemic goiter are produced in the intestinal tract of man and animals. The goiterigenous agent or agents are intermittent in their action in the case of endemic goiter—continuous in their action in the case of Graves' disease. There is no evidence that the blood or thyroid glands of goiterous individuals contain organisms of a bacterial or protozoal nature.

6. **Etiology of Endemic Goiter.**—McCarrison claims that at certain seasons of the year goiterigenous substances may be present in the feces of goiterous and non-goiterous persons and animals which are capable of causing the development of massive goiters in rats. Factors of nutrition are not of paramount importance in the genesis of goiter in rats. Insect transmitters of disease are not responsible for the spread of goiter in rats. House, room, cage or fish-tank infection is an important factor in the genesis of goiter. The excreta of the human or animal subject is the main source of the disease. The infecting agent is capable of life, and it may be of some degree of growth, outside the body of man in fecally contaminated soil or grossly polluted water. Suspicion points to intestinal anaerobes as possessing a goiterigenous influence on the thyroid gland. Water, food, soil or other mediums whereby the infecting agent or agents of the disease reach the bodies of man and animals are of importance only as vehicles of its transmission.

12. **Experimental Beriberi.**—Of twelve pigeons fed by McCarrison only on dry polished rice, seven developed typical polyneuritis gallinarum within ten to twenty days. The remaining four escaped the disease within the period of the experiment. Of twelve pigeons fed only on boiled polished rice, nine developed typical polyneuritis within ten to twenty days. The remaining three escaped the disease within the period of the experiment. Of twelve pigeons fed on liberal diet none developed any signs of disease. Blood agar on ordinary agar plates were smeared with portions of the internal organs of six pigeons suffering from experimental beriberi produced as a result of the consumption of polished rice; innumerable colonies of a bacillus resembling that of hog-cholera appeared on the plates, after twelve to fifteen hours' incubation at 37 C. in all six cases.

The organs of three out of four control pigeons examined were sterile, while a very few colonies of this bacillus were obtained from the internal organs of the fourth. A few colonies of this organism were obtained from the organs of four out of eight pigeons which were fed on polished rice, but which showed no clinical signs of the disease within the period of the experiment. Living cultures of this bacillus, when inoculated into liberally fed rabbits, fowls and pigeons (a total of twenty-eight animals) produced in nineteen, or 67.8 per cent., within a period of nine days, symptoms which were indistinguishable clinically from polyneuritis gallinarum. The sciatic nerves of all such cases showed degenerative changes of greater or lesser degrees of severity, while those of seventeen controls, whose organs were sterile, have shown no evidence of pathologic change.

Journal of Pathology and Bacteriology, London

October, XIX, No. 2, pp. 139-304

17 *Histologically Non-Malignant Angioma, with Numerous Metastases. T. Shennan.
18 Variation in Amount of Complement in Blood in Some Acute Infectious Diseases and Its Relation to Clinical Features. W. C. Gunn.

19 Comparison Lesions of Nervous System in Distemper of Dog with those of Human Poliomyelitis. J. P. McGowan and J. W. Dawson.
20 An Unusual Tumor (Granuloma or Myxosarcoma) of the Hand. J. A. C. MacEwen.
21 *Analysis of the Effect of Nuclein and Nucleic Acid on Normal Antibody. S. P. Bedson.
22 Simplified Method for Cultivation in Fluid Media Containing Coagulable Albumin, of Bacteria Requiring Anaerobic Conditions Notably Pathogenic Spirochetes. J. W. McLeod and A. R. B. Soga.
23 Studies of Strain of Gonococcus Grown on Ordinary Media. W. Broughton-Alcock.
24 Regulation of Blood Volume in Normal and Nephritic Animals. Experiments with Tissue Fluid. A. E. Boycott and J. S. C. Douglas.
25 Iron Content of Organs in Bronzed Diabetes (Hemochromatosis). R. Muir and J. S. Dunn.
26 *Study of Boas-Oppler Bacillus. H. M. Galt and C. C. Iles.
27 Fatty Changes in Liver, Heart and Kidney. C. G. Imrie.
28 Pathologic Changes in Liver Resulting from Passive Venous Congestion Experimentally Produced. C. Bolton.
29 Regulation of Blood Volume in Experimental Nephritis. R. A. Chisolm.
30 *Obligate Anaerobes in Alimentary Tract of Infants. E. J. Dalyell.
31 Purification of Crude Silk Peptones for Bacteriologic Purposes. I. W. Hall.

17. **Histologically Non-Malignant Angioma.**—Shennan's case was one of angioma which displayed no sarcomatous transformation or other histologic indication of malignancy, yet gave rise to numerous secondary growths throughout the body. The patient was 23 years of age. The clinical sequence of events was as follows: A toxic gastro-intestinal attack about 1900, thirteen years ago, when the patient was about 10 years of age. The influenzal attack, with barking cough, suggesting mediastinal pressure, in December, 1907, six years ago, when the patient was about 17 years of age. Hemoptysis, June and July, 1908, five and a half years ago. No return of symptoms until in July, 1909, when also hemoptysis occurred; a year later it was most persistent. Enlargement of the spleen was first detected in October, 1909, some time before her first attack of splenitis. Hemorrhage into the pleural cavity at the time of the first attack of splenitis in November, 1909. At the same time dulness and crepitation were detected for the first time near the root of the left lung. Petechial hemorrhages with beginning formation of nevi in the skin were noticed first about August, 1910. Vomiting of blood occurred on two occasions about October, 1911. Diarrhea with ascites developed in the late autumn of 1912; at same time enlargement of liver. About the same time swelling was detected in the sternum. March 3, 1913, ascitic fluid drawn off was seen to consist largely of blood. May, 1913, the ovaries were felt to be enlarged and cystic. Thrombosis of mesenteric vessels occurred four or five days before death, with infarct of part of intestine. The clinical history pointed to the mediastinum as the earliest seat of the disease. The end came suddenly and seemed to be due to heart failure. Metastases were found in the lung, spleen, liver, ovaries, sternum, left clavicle and lumbar vertebrae. A detailed postmortem report is presented.

21. **Nuclein, Nucleic Acid and Antibody.**—Bedson found that nuclein alone, out of the three leukocytosis-producing substances examined, brings about a rise in the opsonic index. This rise is first in evidence twenty to thirty minutes after the injection, is still marked seven and one-half hours after, but has completely disappeared in twenty-four hours. The increased opsonic activity of the serum is readily destroyed both by heating for thirty minutes at 56 C. and by diluting with normal saline. It would appear, therefore, that there is no increase in the thermostabile opsonin normally present in the serum. This effect is not produced by all preparations of nuclein or nucleic acid, as, out of the four examined, two were found to be without effect. Seeing that these two latter preparations were the purest of the four, it would appear probable that this effect is not due to the nucleic acid radicle but to the presence of some impurity.

26. **Boas-Oppler Bacillus.**—Specimens of the Boas-Oppler bacillus were obtained by Galt and Iles from three definite cases of carcinoma of the stomach; in these cases free hydrochloric acid was absent, and lactic acid was present in the stomach contents. Isolation and primary cultivation were affected on special mediums, and the morphologic and cultural characters were compared under standard conditions with those of a known strain of the *B. bulgaricus.* The evidence went to prove that the Boas-Oppler bacillus is identical with the *B. bulgaricus* and not an organism *sui generis.* True dichotomy was observed in cultures both of the Boas-Oppler and of the *B. bulgaricus,* indicating that another member of the long rod group of lactic acid bacteria, namely, the *B. bifidus* of Tissier, is probably identical with the above organisms. The inference was drawn that in cases of cancer of the stomach it is the absence of hydrochloric acid that allows of the growth of the bacillus, and that the lactic acid is formed as a result of the activity of this organism.

30. **Obligate Anaerobes in Alimentary Tract of Infants.**—Two types of strict anaerobes were found by Dalyell in the intestinal tract eight to twelve hours after birth, and in the first forty-eight hours of life were more abundant than the facultative anaerobes of the coliform type. The powerfully fermentative and proteolytic *B. aerogenes* was present within twelve to twenty-four hours after birth, in all cases examined. The other anaerobe, also constantly present, is acidophilic and a feeble fermenter of sugars is markedly pleomorphic, and is affected by symbiosis and by variations in culture media. At the end of the first week of life, facultative anaerobes of the coliform type were numerous, but the same two obligate anaerobes were still present in fairly large numbers and could be demonstrated by cultivation in special media.

Lancet, London

October 31, II, No. 4757, pp. 1031-1078

32 Advances in Knowledge Regarding Circulation and Attributes of Blood Since Harvey's Time. R. D. Powell.
33 Traumatic Tetanus. M. H. Gordon.
34 Further Results in Electrolysis Treatment of Cystitis. C. Russ.
35 Small-Pox, Vaccination and New Vaccination Law in Siam. H. C. Highet.
36 Periosteal Whitlow. H. R. Davies.

Bulletin de l'Académie de Médecine, Paris

October 20, LXXII, No. 32, pp. 163-178

37 Present Supply of Milk in Paris. (Le lait du troupeau de Paris, son emploi.) A. Pinard.
38 Extension Apparatus for Fracture of the Humerus. P. Delbet.

Presse Médicale, Paris

September 30, XXII, No. 69, pp. 629-632

39 *Pillow Extension Bandage for Fracture of the Leg. (L'extension continue des fractures compliquées de jambe par le procédé de l'oreiller.) Chaput.
40 Old Roentgen Tubes. (Quelques mots sur un vieux tube à rayons X.) Lomon.

October 8, No. 70, pp. 633-644

41 *Wounds Produced by the French Projectiles. (Des blessures produites par l'armement français.) E. Delorme.
42 *Causes and Treatment of Hospital Gangrene. (Pourriture d'hôpital.) Vincent.
43 *Tetanus in the Wounded. C. Walther.

October 15, No. 71, pp. 645-648

44 *Treatment of Acute and Subacute Dysenteric Colitis. A. Mathieu.
45 *Dentistry Protheses in Military Surgery. (La prothèse dentaire dans la chirurgie de guerre.) P. Martinier and M. Roy.

October 22, No. 72, pp. 649-656

46 Treatment of Fracture of Femur in the Field. (Traitement des fractures de la diaphyse du fémur par coups de feu.) Chaput.
47 General Principles for Military Surgery. (Blessures de guerre.) E. Delorme.

39. **Pillow Extension.**—Chaput gives an illustration of this means of treating compound fracture of the leg. He says that it not only is simplicity itself, but it acts better than more complicated apparatus and has several special advantages. The leg is dressed as usual with gauze and cotton applied thin and smooth all around the leg from the top of the foot to the knee. The leg is then placed lengthwise on an ordinary pillow, not too thick, the heel at the lower end. The sides of the pillow are then brought up and crossed over the leg and a bandage is wound tight around the whole to form a solid cylinder. A strip of cloth is pinned to the lower

part of the pillow on each side, and these are tied together 4 inches below the foot and a weight suspended from them.

41. **Wounds from French Firearms.**—Delorme reviews his experience in treating about 700 Germans wounded by the French arms, and comments on the remarkably large proportion of fractures of the legs, thighs and arms and the rarity of abdominal and chest wounds. He was also impressed by the lack of complications, except tetanus, which was comparatively frequent. The projectile had passed entirely through the foot in many instances, but there was no tetanus or gangrene or erysipelas in any of these cases.

42. **Chlorinated Lime in Treatment of Hospital Gangrene.**—Vincent found in the Madagascar campaign that the rotting wound was rapidly transformed to healthy conditions when it was dusted with fresh chlorinated lime mixed with about ten parts pulverized boric acid. He first cleanses the wound and then covers it generously with this antiseptic powder, dusting with it the skin around. In two or three days the wound assumes an entirely different aspect. He changes the dressings in twenty-four hours if there is much secretion; otherwise he waits for forty-eight. He adds that a 20 per cent. solution of iodin would certainly aid in warding off trouble if it could be applied at the time of the first-aid dressing. It might be possible to include the material in the first-aid packet so that the wounded could make the solution fresh as needed.

43. This article was summarized recently, p. 1684.

44. **Dysentery.**—Mathieu emphasizes that we should not speak of "dysentery" but of "dysenteries," as there are several kinds of dysenteric colitis. Even without waiting for bacteriologic examination it might be advisable to give an injection of antidysentery serum, as it is most effectual when administered at the first signs of dysentery of non-ameba origin. He has found useful a rectal injection morning and night for two days of silver nitrate, 0.25 gm. to a liter of tepid distilled water, suspending then or continuing according to indications. Among other remedies advocated he mentions sodium sulphate for its laxative and modifying action, 5 or 10 gm. in tepid water in the morning if there is not much solid matter in the stools. When there is actual diarrhea he gives smaller doses and gives a little opium with it. After subsidence of the dysentery, a course of small doses of the sodium sulphate may aid in restoring normal conditions in the colon. Persons with dysentery should be fed according to the principles applied in feeding infants with bowel trouble; nothing but water at first, or lactic-acid lemonade with 5 per thousand sugar, taking half a liter at first and then a liter. Sugar is useful in these cases, as it is nourishing and can be taken up to 50, 100 or 150 gm. a day. Fluid food can then be resumed, gradually coming to a vegetable diet with a little ham or roast chicken.

45. **Dentistry Protheses for the Wounded.**—Martinier and Roy remark: "The surgical prothesis as a branch of dentistry owes its origin to Claude Martin of Lyons, and it is thanks to him and to the French school that it has reached its present state of high perfection." Such protheses are useful not only to restore the shape of the jaw, but to promote the healing of a fracture of the jaw. This lesion is particularly serious on account of the wound being constantly bathed with saliva and exposed to infection of all kinds from the mouth. When suture is attempted at once there is almost inevitably suppuration, with additional and avoidable destruction of tissue. The ordinary measures for reduction of a fracture elsewhere cannot be applied to the jaw, but dentistry methods answer the purpose ideally if they can be applied early enough, immobilizing the fracture and permitting healing with the minimum of disfigurement and functional disturbance. "The collaboration of the dentist is thus indispensable to the army surgeon for early assistance in treating wounds, not only of the jaws, but of the skull, while his aid is of paramount importance in the later treatment of wounds leaving defects in the jaws, nose and ears." (The organized dentists of Paris have appointed a committee for assistance to aid in treating injuries of the jaws and face, and offer their services to the surgeons at the front.)

Revue Médicale de la Suisse Romande, Geneva

September, XXXIV, No. 9, pp. 561-588

48 *Artificial Heliotherapy. (L'héliothérapie artificielle avec la lampe de Vignard.) C. Martin.
49 *Landau's Reaction in Diagnosis of Syphilis. J. Golay.

October, No. 9, pp. 589-616

50 *Hypertrophic Stenosis of the Pylorus in Infants; Five Cases. L. Exchaquet.
51 Intermittent Hydrosalpinx. P. Wanner.

48. **Artificial Heliotherapy.**—Du Pan has tried various lights for treatment of bone and joint diseases, but discarded the arc light, as it generates too much heat. The quartz mercury lamp sends out rays most closely approximating direct sunlight, but the middle ultraviolet rays act on the skin and, although useful for lupus and other superficial lesions, they are not only useless but injurious in treating deep lesions. They can be filtered out by interposing a sheet of "pastel" glass, white on the cut edge, which sifts out these middle ultraviolet rays. With a lamp constructed on this principle, with air passing out through a chimney at the top, the skin exposed to its light never gets warmer than 40 C. (104 F.), and there is no perspiration to debilitate the patient and make him thirsty. The lamp has 7,000 candle power and is run with a 500-volt current obtained from the street railway system. Four or five children are exposed to the light at a time. They lie on a large table which slopes down toward the center. Each wears goggles to protect the eyes, but no clothes, the aim being to imitate as closely as possible with artificial light Rollier's method of exposure to the direct sunlight in the Swiss mountains. The results in the thirty-two cases thus treated have been extremely encouraging. They include tuberculous processes in the knee, spine, hip-joints, etc., osteomyelitis, and two cases of chronic peritonitis. One girl of 6 had been operated on two years before for an extremely painful tuberculous process in one knee. She later developed tuberculous keratitis and the other knee became swollen and painful. She was then given a course of the artificial heliotherapy and there was no further pain aften ten exposures. By the end of three months the knee was apparently normal and the child had gained 900 gm. in weight.

49. **Landau's Color Reaction in Diagnosis of Syphilis.**—This simple color reaction was described recently in The Journal, Oct. 10, 1914, p. 1317. The reagent is a 1 per cent. solution of iodin in tetrachlormethane (carbon tetrachlorid). Golay's experience with 63 applications of the test has confirmed its reliability, he declares, and shown that it is more sensitive even than the Wassermann test, while the technic is extremely simple. It was positive in 41 cases, negative in 11; parallel Wassermann tests were positive in only 37 and negative in 26.

50. **Stenosis of the Pylorus with Hypertrophy in Infants.**—The infants were breast-fed in Exchaquet's five cases, and the persistent vomiting began during the first, second, third, sixth or eighth week after birth. There was no inherited nervous taint evident, except in one instance the mother was known to be nervous and to have had stomach trouble. One child seemed to be thriving at first, but then began to vomit, and the physician the third week stopped the breast feeding and put the child on Vichy water and gruel. The vomiting kept up for a month and then stopped and extreme dropsy developed, with subnormal temperature. The diagnosis was athrepsia with idiopathic edema. This diagnosis was correct, but the primary cause, the stenosis of the pylorus, was overlooked and also the secondary cause, namely, the feeding with a mineral water and starch gruel which directly induced the dropsy, fluids being retained to dilute the salt and other minerals being taken in excess. Change to a cream-albumin diet was followed by improvement for a week, but then the child died. Nothing abnormal was found at necropsy except the hypertrophied pylorus, which had enlarged until it was scarcely permeable for fluids.

The persisting vomiting, coming on late after a feeding, extremely copious and squirting with force, the waves of peristalsis in the stomach or its total rigid contraction, and palpation of a tumor in the pylorus region are the main signs of the trouble. A tumor was evident in only two of his five cases. Castor oil, Vichy water, etc., will not stop the vomiting until the child gets too weak to vomit. A rapid drop in the weight, 500 gm. in two days in one of his cases, and in one of Tixier's, aids in the diagnosis. In well-to-do circles, where the child can have careful attendance, medical treatment may be given a thorough trial, but among the poor, the indications for surgical treatment should be broadened. The operation should come within a day or two if there is a very great drop in weight, and not later than eight or ten days if there is no improvement under systematic medical treatment. Fredet, Scudder and Munro have successfully operated for it on children only 13 to 30 days old. Breast-fed infants should be allowed to nurse as much as they will, if they vomit afterward; the peristalsis should be soothed by moist heat to the region and a little opium or atropin by the rectum. This is Heubner's expectant method. For bottle-fed children, the food should be the most easily digested, buttermilk or sweetened skim milk, milk with malted gruel or milk with albumin and cream. The child should be fed with minute amounts at a time to ward off vomiting, and the stomach should be washed out to bring away any residue. The tendency to spasm should be combated by moist heat and rectal injection of valerian, opium or atropin. The general health should be sustained by subcutaneous and rectal injection of salt solution and nutrient enemas. When possible, it may be wise to supplement the above by stretching the pylorus by intubation according to Hess' technic.

Archiv für Kinderheilkunde, Stuttgart

LXIII, Nos. 5-6, pp. 321-488. Last indexed August 15, p. 612

52 *The Parathyroid Glands. (Zur Kenntnis der Epithelkörperchen.) L. Thimm.
53 *Fluctuations in Gastric Secretion under Emotional Stress. (Psychogene Magensecretionsanomalien im Kindesalter.) W. Wegener.
54 Histologic Examination of the Musculature in Rachitic Children. M. Gutstein.
55 Comparative Study of Action of Inorganic and "Organic" Calcium-Phosphorus Preparations on the Metabolism in Recent and in Subsiding Rachitis. (Kalkphosphorpraparate.) E. Schloss.

52. **The Parathyroid Glands.**—Thimm examined the parathyroids in 100 cadavers of persons over 20 or under 2 and in sections from the throat of several fetuses, and of a large number of laboratory and zoological garden animals. Welsh's four types of parathyroids seem to correspond, he thinks, to declining glandular function, the last stage being accompanied by a colloidal secretion. The findings in this extensive material are described in detail, and especially the fetal and the atypical glands.

53. **Psychic Suppression of Gastric Secretion in Children.**—The psychogenous anomalies in gastric secretion to which Wegener refers are generally of the anachlorhydria type, but hyperchlorhydria is also encountered occasionally. There is generally an unstable nervous system and sometimes signs of the exudative diathesis. He remarks that stomach disturbances in general are unusually prevalent in his district (Mecklenburg). His patients at Rostock in describing their symptoms with almost every kind of affection invariably mention disturbance in the stomach as the main trouble. That the child refuses food is almost invariably the only symptom noticed and mentioned by the family, even when a febrile child with pneumonia or diphtheria is brought for treatment. It is now his routine practice to examine the stomach content after a test breakfast whenever there is complaint of loss of appetite and pain in the stomach. In 80 thus examined there was pronounced hyperacidity in 2 and anacidity in 17. One boy of 11 who had intense hyperacidity had been under treatment for some years for supra-orbital neuralgia, and had also astigmatism and enlarged tonsils, but no appreciable gastro-intestinal disturbances. In the other case the hyperacidity was accompanied with hypersecretion, pains and tenderness in the stomach region. The nervous origin of the secretory disturbance was evident from other signs of excessive irritability of the nervous system and also by the restoration of anachlorhydria to normal under administration of a few drops of hydrochloric acid supplementary to the impression made on the susceptible children by the introduction of the stomach tube and siphoning out of the stomach contents. Only one case proved refractory, and this was an only child of 5 whose mother was extremely neuropathic.

Archiv für Verdauungs-Krankheiten, Berlin

October, XX, No. 5, pp. 543-616

56 Diagnosis and Treatment of Gastric and Duodenal Ulcers. M. Einhorn (New York).
57 *Dry Test for Occult Blood in the Stools. (Zum Nachweis okkulter Blutungen in den Fäzes.) A. Wagner.
58 Bismuth Passes into Bronchi through Perforation in Cancerous Esophagus. (Wismut im Bronchialbaum.) S. Frank.
59 *Putrefaction in the Intestines. (Klinische und experimentelle Ergebnisse über Darmfaulnis im Jahre 1913.) A. Rodella.
60 Physiologic and Therapeutic Action of Extract of Duodenal Mucosa: Sekretin. H. R. Harrower.

57. **Dry Test for Occult Blood in the Stools.**—Wagner calls attention to his simplification of the benzidin technic as extremely rapid, reliable and cleanly. A scrap of the stool is taken up on the end of a match and smeared thin on a slide. Then the usual Schlesinger-Holt-Adler reagent is poured over the slide, and in case there is blood present a blue tint develops promptly. The reagent is a knife-tip of benzidin on which is poured 2 c.c. of glacial acetic acid and 20 drops of a 3 per cent. solution of hydrogen peroxid. He calls this the dry benzidin or slide test, and says that with it there is no need to soil the fingers. The outcome is never dubious, as there is either no change to blue or it is pronounced. With a large proportion of blood the reaction occurs instantaneously.

59. **Putrefaction in the Intestines.**—In this second instalment of his report on his research in this line, Rodella asserts that his hundreds of experiments have conclusively demonstrated that putrefaction in the intestines is not so important a factor in morbidity as generally imagined. The putrefaction which is the work of ordinary saprophytic anaerobes must be regarded as a harmless process, never capable of generating pathologic products. This applies both to pure putrefaction, the work of anaerobes and the mixed process of decay. "Although putrefaction in the intestines is an entirely harmless process," he adds, "yet the gases and other irritating products generated may induce more or less serious disturbances. The harmless character of intestinal putrefaction, which was demonstrated anew in my experiments with intraperitoneal injection of guinea-pigs and rabbits, has also been rendered highly probable by the experience in recent military campaigns. Gunshot wounds of the abdomen with escape of intestine content into the abdominal cavity healed spontaneously without harm as a rule when they were left unmolested." The conception of auto-intoxication from bacterial putrefaction in the intestines is not sustained by his research. The products of putrefaction, however, facilitate infection, and hence they should be kept down as much as possible.

Beiträge zur Klinik der Tuberkulose, Würzburg

October 15, XXXII, No. 3, pp. 257-391

61 *Is there a Mechanical Predisposition to Apical Disease? (Untersuchungen zur Hartschen Lehre von der mechanischen Disposition der Lungenspitzen zur tuberkulösen Phthise.) H. Ulrici.
62 *Tuberculin Treatment of Tuberculosis. (Zur Tuberkulin-Behandlung der Lungentuberkulose mit Kochs Neutuberkulin-Bazillenemulsion.) H. Klein.
63 *The Albumin Reaction in the Sputum. (Bedeutung der quantitativen Eiweissreaktion im Sputum tuberkuloser Individuen bezüglich der Diagnose und Prognose der Lungenerkrankung.) J.-H. Benzler.

61. **Is There a Mechanical Predisposition to Apical Disease?**—Ulrici devotes nearly fifty pages to arguments and data which disprove the assumption that the size and shape of the upper ribs and the greater or less ossification of the costal cartilages induce a predisposition to tuberculous apical processes. He gives eighteen views of the superior aperture in some of his seventy-four tuberculous patients under 30, and tabulates the details of examination of 141 persons in all.

62. **Tuberculin Treatment of Tuberculosis.**—Klein gives thirty pages of tabulated details in regard to 112 patients with pulmonary tuberculosis given a systematic course of tuberculin treatment. Slight, if any benefit was realized in the "open" cases, and in the others equally favorable results as those attained can be realized by diet and hygiene alone. The tuberculin did not prevent hemorrhages.

63. **The Albumin Reaction in the Sputum.**—Benzler examined the sputum in sixty-five cases repeatedly for albumin and found that the proportion declined as the patient improved and increased as the condition grew worse. The amount seemed to be independent of the presence and number of tubercle bacilli in the sputum, and it has nothing to do with occult blood. The albumin content sinks after an artificial pneumothorax has been induced and it can thus serve as an index for replenishing the gas.

Jahrbuch für Kinderheilkunde, Berlin

October, LXXX, No. 4, pp. 373-466

64 Amount of Sugar in the Blood not an Index of the Rapidity of Absorption of Sugar. (Zuckerresorption und Blutzuckerspiegel.) G. Bergmark.
65 *Rupture of Tuberculous Tracheobronchial Glands into the Air Passages in Childhood. M. Paunz.
66 Physiology of the Tendon Reflexes in Infancy and Childhood. (Sehnenreflexe im Säuglings- und Kindesalter.) J. Vas.
67 Composition of the Blood and Constitution of the Child's Body in Relation to Nutrition and Weight. A. O. Karnitzky.

65. **Rupture of Tuberculous Glands Into Air Passages.**—Paunz reiterates that tuberculosis in children is most frequently localized in the tracheobronchial lymph-glands. It is almost always secondary, from a primary infection in the lungs. Sometimes the foci in the lungs are so small that they are overlooked, but they are there, showing that in the great majority of cases the infection takes place by inhalation. He discusses the cases of rupture of tuberculous glands into the trachea and bronchi that have been reported in literature, including four of his own previously published, and describes in detail four further cases of his. The symptoms of pressure on the air passages are cough and difficulty in breathing. After rupture takes place there are attacks of suffocation. There may also be unilateral dilatation of the veins of the neck and slight edema of the face from the pressure. In addition to the ordinary clinical examination for tuberculosis, Roentgen examination of the glands should be made. Another important aid in diagnosis is direct tracheobronchoscopy, but in children it is preferable to use this only as an introduction to treatment. The treatment in mild degrees of compression may be only the usual treatment of tuberculosis; sea air and heliotherapy are valuable adjuvants. Severer degrees of compression should be carefully watched on account of danger of rupture. After rupture has taken place tracheotomy should be performed at once, followed by tracheobronchoscopy from below. The caseous gland should be treated as a foreign body. The rupture at first is generally only a small one, so there is abundant time for operative treatment before suffocation is fatal or even dangerous. Among ten patients treated in this way seven have recovered and three have died. The discharge of the gland through perforation is often the last act in the spontaneous healing of tuberculosis, which is not at all unusual in children over 2 years of age, increasing with advancing age. Therefore the prognosis is not bad. Only two of these ten children showed signs of pulmonary tuberculosis later. If all cases of glandular tuberculosis were carefully followed the prognosis could be improved,

Medizinische Klinik, Berlin

October 18, X, No. 42, pp. 1581-1606

68 Typhoid and Paratyphoid. N. Ortner. Concluded in No. 43.
69 Surgery in the Field. A. Köhler. Continued.
70 Psychoses in the Field. (Kriegspsychosen.) G. Buschan.
71 *Chronic Osteomyelitis. F. Rost.
72 Contraction of Cer[illegible] *with the Heart Beat.* (Herzsynchrone [illegible] Ruediger.
73 Suture of Tendons, Nerves, etc., in the Field. (Einige wichtige Ratschläge spezieller Art für die Wundbehandlung.) O. Nordmann.

71. **Chronic Osteomyelitis.**—In the course of this long thesis Rost states that he has succeeded in inducing a typical chronic osteomyelitis in rabbits by injecting cultures of staphylococci the virulence of which had been previously attenuated by heating. Experience with more than 200 clinical cases has demonstrated that the bactericidal properties of the serum, the opsonic index and the agglutination test have little practical value. The latter is such a sensitive reaction that any insignificant suppuration anywhere is liable to veer the reaction to positive. The antistaphylolysin reaction, on the other hand, is practical and reliable. This is based on the fact that pyogenic staphylococci produce a toxin which dissolves the red corpuscles of the rabbit. In the infected organism an antibody is generated, which inhibits this dissolving action. This test differentiates tuberculous processes from ordinary osteomyelitis, as with tuberculosis there is little or none of the antitoxin generated, even when there is mixed infection. No other staphylococcus affection induces the production of so much antitoxin as osteomyelitis, and this explains why acute osteomyelitis so rarely recurs. It passes into a chronic stage with extensive production of granulation tissue. Osteomyelitis in adults is not so rare as generally supposed; it is often mistaken for a tuberculous process. In one such case the talus and in one the fifth metatarsal bone was the seat of the trouble; in a third the sternum. In one case everything seemed to indicate a sarcoma of the tibia, but an exploratory excision revealed only inflammatory tissue, and the second Roentgen picture a year later confirmed that all the trouble was osteomyelitis with a tendency to sclerosis in a man of 46, similar in every respect to the affection described by Garrè in the young. In one case the osteomyelitis was in the head of the femur. It developed abruptly with intense pains, but all signs of inflammation and tumor had disappeared by the end of the year although of course the dislocation still persists.

Therapeutische Monatshefte, Berlin

October, XXVIII, No. 10, pp. 641-672

74 *Anesthetics. (Ueber schmerzstillende Mittel.) M. Kochmann.
75 *Serotherapy of Cholera in Greece. C. Savas.
76 *Vaccination Immunity to Small-Pox. (Eine Beobachtung zur Impffrage.) E. Apolant.
77 *Red-Light Treatment of Small-Pox. (Die Finsenbehandlung bei Pocken.) C. H. Würtzen.
78 Seasickness. (Zur Entstehung und Verhütung der Seekrankheit.) F. Koch.
79 *Course of Inunctions with Green Soap. (Systematische Einreibungen mit grüner Seife.) F. Külbs.

74. **Anesthetics.**—Kochmann writes from the Pharmacologic Institute of the University of Halle to give an oversight of the present status of prophylactic and curative analgesia. He warns that the high concentration of the drug used to inaugurate anesthesia must be reduced after a certain period or it becomes dangerous. This factor of the length of time the high concentration is given is liable to be disregarded when an apparatus is used. At the same time there are certain advantages in using an apparatus. His experimental work in this line has demonstrated, he says, that mixing chloroform and ether enhances the potency of each without increasing the toxicity. Damköhler (1913) claims that a mixture of 1 part chloroform to 6 or 7 parts ether enhances the potency fully 30 per cent. It is possible, also, that the injurious action of chloroform on the circulation is nullified by the ether. Kochmann says further that the addition of potassium sulphate to a solution of novocain or cocain enhances the potency by 75 per cent. His formula is 0.25 gm. novocain; 20 c.c. of a 2.3 per cent. solution of potassium sulphate and enough of a 0.9 per cent. solution of saline to make 100 c.c. To this he adds twelve drops of a 1 per thousand solution of epinephrin. The potassium sulphate has an opposite action with some of the other anesthetics. Gros insists that the free alkaloid base is what penetrates into the tissue from any local anesthetic, and hence the action can be enhanced by adding an alkali to the solution, preferably in the form of 0.25 gm. sodium bicarbonate added to 1 gm. novocain plus 0.5 gm. sodium chlorid, dissolved in 100 c.c. distilled water.

75. **Serotherapy of Cholera in Greece.**—Savas gives here minute details of the way in which cholera was stamped out in Greece last year. A previous account of it was published recently in The Journal, Aug. 22, 1914, p. 713.

76. **Vaccination Immunity to Small-Pox.**—Apolant relates that in a certain garrison with 120 men four had not been revaccinated since childhood. Two of these four developed small-pox and it was traced to an eating-house where there were two cases. All the men frequented the eating-house and

all had thus been exposed to contagion, but none contracted the disease except these two. The cases in the eating-house were in an infant that had not yet been vaccinated, and in the grandmother whose vaccination protection had evidently faded out. The child was saved from pitting in the face by compresses dipped in a weak solution of phenol.

77. **Phototherapy in Small-Pox.**—Würtzen insists that when small-pox patients are systematically and thoroughly sheltered against the chemical light rays—as in a Finsen red-light room or in a dark room—variola runs its entire course without suppuration, changing its character completely. He declares that wherever this has been done the finest results have been realized. He cites the literature on this subject of the red-light treatment of small-pox, including an article with this title in THE JOURNAL, July 17, 1909, p. 247.

79. **Therapeutic Inunctions with Green Soap.**—Külbs has applied green soap, with the same technic as for mercurial inunctions, in over 200 cases of various affections including nervous heart trouble, chronic bronchitis, emphysema, asthma, nervous dyspepsia and migraine—all affections in which revulsion is known to have a possible beneficial action on the local and general condition. There were no by-effects, no eczema or irritation of the skin while the benefit was surprising in some cases. It was most pronounced in the cardiac neuroses and migraine cases, but in the dyspepsia cases the appetite improved and the whole condition seemed materially benefited, as also in the respiratory affections. Asthma seemed less amenable; improvement was manifest only in three of ten cases. He gives a historical sketch of this method of treatment from Richter in 1846 to Hoffa's highly favorable report on 200 cases of tuberculous glands and Kausch's recent corroboratory report on its use in tuberculosis. He does not venture to explain the complex mechanism by which the favorable action is realized, but suggests that it may be analogous to that of air baths, sun baths and local hydrotherapeutic measures.

Grèce Médicale, Athens

October 15, XVI, Nos. 19 and 20, pp. 37-40

80 *Out-Door Air in Typhoid. G. Psarafti.

80. **Typhoid Mild Among Refugees.**—Psarafti discusses the peculiar mildness and absence of complications in a small epidemic of typhoid at Samothrace during the last Balkan War. The cases were all in refugees living in tents or other shelters during a rainy season, amid privations of all kinds, the people ignorant of hygiene and depressed by fear and want. Everything was exactly the opposite of what is usually deemed indispensable in treatment of a case of typhoid; even milk was not to be obtained. But the tents were not far from the sea coast and he ascribes to the pure air and sea breeze the exceptionally mild course of the disease, and insists that this experience should warn of the necessity for pure air for typhoid patients in particular.

Policlinico, Rome

October 25, XXI, No. 43, pp. 1505-1536

81 Improved Technic for Vaccine Therapy. (Un metodo di rapida valutazione del contenuto in germi dei vaccini bacterici—Considerazioni pratiche sulla vaccinazione alla Wright.) F. Valagussa.

October Medical Section, No. 10, pp. 437-484

82 Unilateral Spasm of Traumatic-Hysteric Origin. (Studio clinico sugli emispasmi di origine istero-traumatica.) P. Ciuffini.
83 Roentgenoscopic Study of the Sella Turcica in Relation to Pituitary Disease. (L'indagine radiologica della sella turcica in rapporto alle malattie dell'ipofisi.) L. Coleschi. Continued.

Riforma Medica, Naples

August 1, XXX, No. 31, pp. 841-868

84 Morphin in Pediatric Practice and Operations. (La morfina nella terapia pediatrica con speciale riguardo alle sue applicazioni nella chirurgia infantile.) C. Oliva. Commenced in No. 30.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

July 25, LVIII—II, No. 4, pp. 241-308

85 *Treatment of Dementia Praecox. N. J. Lemel.
86 Osteomalacia. W. M. van der Scheer.
87 Successful Removal of Tumor in Pituitary Gland. P. S. Klots.

August 1, No. 5, pp. 309-380

88 *Heliotherapy at the Seashore in Surgical Tuberculosis. (Zonbehandeling van chirurgische tuberculose aan zee.) M. P. van D. Andreae.
89 Improved Stethoscope. J. W. T. Lichtenblet.
90 Acute and Chronic Melancholia. (Depressieve Toestandsbeelden.) J. van der Torren.

August 8, No. 6, pp. 381-428

91 *Meltzer Insufflation in Internal Disease. (De Methode van Meltzer in de inwendige Kliniek.) A. A. H. van der Bergh and E. D. Wiersma.
92 Intravenous Injection of Concentrated Solutions of Neosalvarsan. J. van Assen.

85. **Thyroid Treatment of Dementia Praecox.**—Lemel remarks that when dementia praecox develops during puberty it seems self-evident that some disturbance in functioning of some organ or organs is responsible for it, and he is convinced that the thyroid gland can be incriminated in many cases and that the dementia may subside under thyroid treatment. This occurred in 11 of the 12 cases he here reports in detail. The improvement in 8 was most striking. Three of the patients were men from 17 to 24, the others girls of 19 to 21.

88. **Heliotherapy of Bone and Joint Tuberculosis at the Seashore.**—Andreae's experience with this at the Katwijk seaside sanitarium in Holland has been extremely favorable and free from deleterious by-effects.

91. **Intratracheal Insufflation.**—Van der Bergh and Wiersma know of very few instances in which the Meltzer and Auer method was applied in internal medicine, and they add another to the list. Their patient was a woman with a tumor in the cerebellum which evidently was injuring the respiration center as she gradually stopped breathing early one morning while in the hospital for consideration of operative treatment. As ordinary methods for artificial respiration were out of the question for permanent relief, and as at the end of an hour there seemed no hope of the woman's regaining spontaneously the power to breathe, intratracheal insufflation was applied, with prompt and striking benefit. It was kept up all day but toward evening the heart began to fail and the woman died at 7 p. m. This experience has demonstrated anew the advantages of intratracheal insufflation under certain conditions. No difficulty was experienced in this case in introducing the catheter into the larynx but if it should go astray in the esophagus the oxygen might injure the stomach lining. Others, including Meltzer, have warned of this danger.

Russky Vrach, Petrograd

June 13, XIII, No. 22, pp. 773-804

93 Appendicitis in an Inguinal Hernia. V. R. Braizeff.
94 *The Clinical Value of the Pirquet Skin Tuberculin Reaction. V. I. Glinchikoff. Commenced in No. 21.
95 *Tubercle Bacilli in the Blood in Pulmonary Tuberculosis. V. N. Vinogradoff.
96 Action of Digestive Ferments on "Fish Poison." S. V. Konstansoff and E. O. Manoiloff.

June 20, No. 23, pp. 805-836

97 *Action of Poisons on the Vessels of the Liver. V. I. Berezin.
98 *Action of Poisons on the Vessels of Inflamed Tissues, and of Epinephrin in Peritonitis. D. A. Eskin.
99 *Diagnosis of Echinococcus Disease of the Liver. D. S. Serebriakoff.
100 *Action of Caisson-Work on the Blood. A. S. Solovtzova. Commenced in No. 13.

94. **Skin Tuberculin Reaction.**—Glinchikoff reports the results of extensive study of Pirquet's test in different diseases besides tuberculosis, pleurisy, pneumonia, typhoid, etc. Of the 40 tuberculous patients, 25 showed marked improvement of health, even recovery, and in these patients the skin reaction was intense. The Pirquet was very faint in the 10 progressive cases. In 5 stationary cases, the reaction was likewise stationary. The reaction is evidently in inverse proportion to the intensity and extent of the lesion in the lungs, and thus repeating the test at intervals may give an idea of the probable outcome in a given case. The same law proved to apply also in pleuritic patients, in typhoid, pneumonia, etc. In all acute infections the Pirquet was negative when the disease process was at its height and became pronounced with the recovery of the patient. Acute infections

give a stronger Pirquet than chronic disease, anemia, valvular heart lesions, disease of the liver, etc.

95. **Tubercle Bacilli in the Blood.**—Vinogradoff comes to the conclusion from examination of fifty tuberculous patients that the presence of virulent tubercle bacilli in the blood of patients with tuberculosis of the lungs or other organs is a phenomenon of rare occurrence and brief duration.

97. **Action of Poisons on the Vessels of the Liver.**—The frog or guinea-pig liver was isolated and flushed with Ringer-Locke's fluid passed through a pipet introduced into the abdominal vein (afferent) and posterior vena cava (efferent pipet). The portal vein, the hepatic artery and the common bile duct were ligated. Among the various chemicals tested, epinephrin, in a solution of 1 to 200,000 or 1,000,000 caused marked contraction of the hepatic vessels; beta-imidazolylethylamin (1:1,000,000) does not affect the vessels of the liver nor those of the periphery, but causes contraction of some vessels in guinea-pigs. Caffein (1:1,000) caused dilatation, as also pepton, while barium chlorid (1:1,000) did not act at all, or dilated the vessels in the frog, but in guinea-pigs it constricted them. Nicotin (1:1,000) induced contraction.

98. **Action of Poisons on the Vessels of Inflamed Tissues and of Epinephrin in Peritonitis.**—Eskin studied on the vessels of the normal or inflamed ears of rabbits the action of different substances including epinephrin, normal serum, serous effusion, caffein, cocain, and the toxins of cholera and of typhoid bacilli. Altogether forty-five experiments were made. He found that epinephrin acted on the vessels of an inflamed ear less than under normal conditions, frequently producing vascular dilatation. Caffein, normally dilating the vessels, causes a stronger vasodilatation in an inflamed ear. The reaction of epinephrin in artificially produced peritonitis is the same as in normal conditions, though it does not cause any marked constriction or any other action on the vessels of an inflamed mesentery or intestines. Serum (1:5,000) constricts normal vessels, but the action is less in case of inflammation. Cocain contracts the vessels of an inflamed ear less than those of a normal; weak caffein solutions (1:5,000 or 10,000) cause a stronger vasodilatation in an inflamed than in a normal ear. The toxins of different bacteria contract the vessels of both the inflamed and normal ear alike. Diluted exudates constrict the vessels of a normal ear, but do not influence an inflamed one.

99. **Diagnosis of Echinococcus Disease of the Liver.**—In two cases of alveolar echinococcus disease of the liver Serebriakoff did not find the usual clinical picture of this disease, namely, unusual hardness of the liver, regular enlargement and pain. To avoid blunders in diagnosis in such puzzling cases the blood should be examined for eosinophilia. It was pronounced in his two cases. Eosinophilia is due, in his opinion, to toxic influences produced by the echinococcus.

100. **Influence on the Blood of Working in Compressed Air.**—Solovtzova examined the blood of fifty-six caisson-workers. Their age was 20 to 40 years. Some were old, experienced caisson-workers, some were working in compressed air for the first time. The examination was usually six hours after the last meal. All of the men showed anemia in the form of decreased amount of hemoglobin and of the red corpuscles and frequently of the white. There was no parallelism between the low proportion of hemoglobin and of reds, as a considerable reduction in the hemoglobin percentage might be combined with a sudden increase in the number of erythrocytes. Microcytes would occasionally show; the polynuclear neutrophils showed a decrease, while the large lymphocytes and the eosinophils had increased. The reduction in the hemoglobin percentage and of the erythrocytes occurred with but an inconsiderable increase of the atmospheric pressure. In some of the men leukocytosis was evident. The blood returned to normal very slowly; even after an interval of two and a half weeks it was not always entirely normal. In those caisson-workers who had worked only two weeks, the blood became normal in a few days. As work in the caissons thus causes such serious blood changes, it is necessary to take all kinds of sanitary and hygienic precautions to guard the workingmen's health.

Hospitalstidende, Copenhagen

October 14, LVII, No. 41, pp. 1249-1272

101 Cultivation of Spirochete of Syphilis. (Rendyrkning af Spirochæte pallida.) A. Kissmeyer.
102 The Medical Profession in Greenland. (Lægevæsenets Ordning i Grønland.) A. Bertelsen.

Nordisches medizinisches Archiv, Stockholm

XLVI, Surgical Section No. 3. Last indexed Jan. 31, p. 422

103 *Operations to Close Gap in Skull. (Zur Deckung von Kranialdefekten.) O. Löfberg.
104 *Exclusion of the Bladder in Severe Tuberculosis of this Organ. (Exclusio vesicæ bei schwerer Blasentuberkulose.) E. Key.
105 Forking Urethra. (Fall von Bifurcatio urethrae.) T. Rietz.
106 Tumors of Greater Omentum. S. Johansson.
107 Fracture of the Wrist. (Zur Frage von den typischen Radiusfrakturen am Handgelenk und ihrer Behandlung.) P. Haglund and S. Hybbinette.
108 *Surgery of the Lungs. G. Ekehorn.

103. **To Close Gaps in the Skull.**—Löfberg reviews the different technics that have been applied for this purpose, including the use of a thin sheet cut from a cow's horn. This material was selected as being an epidermis substance which resists absorption unusually long although it in time is all absorbed. The regeneration of bone thus is able to keep pace with the absorption. Lindström and Lexer have had favorable experiences with horn, but Löfberg prefers an autoflap for the purpose. He reports excellent results in four cases of an extensive defect closed with a flap of periosteum and skin, taken from near by, or a strip from the internal lamina or with a sheet of bone and periosteum cut from the tibia. He mentions in conclusion Kleinschmidt's suggestion for a bone flap entirely covered with periosteum. This can be obtained by cutting with the bone flap enough extra periosteum to cover the other side of the bone.

104. **Severe Tuberculosis of the Bladder.**—Key says that the intensely painful subjective symptoms caused by the contraction of the bladder can be entirely arrested by diverting the course of the urine so that there will be nothing in the bladder to start it to contracting. The patient's life is not lengthened by the operation but he is spared torment by this exclusion of the bladder. The difference in the condition before and after was expressed by one patient as "the difference between hell and paradise." In the cases on record, the ureters were implanted in the bowel in 2 cases with the death of one patient. Permanent ureterostomy has been done in 3 cases with most gratifying results. Key contributes 2 cases to this group and extols the advantages of this technic. Nephrostomy was done in 6 cases, with one death. The drawback to nephrostomy is that it damages the kidney more or less. Ureterostomy is preferable if the ureters are still permeable.

108. **Surgery of the Lungs.**—Ekehorn's article is a discussion on the preferable method for regulating the atmospheric pressure during operations on the lungs; opinions are still divided as to the superior advantages of underpressure or overpressure.

Ugeskrift for Læger, Copenhagen

October 8, LXXVI, No. 41, pp. 1767-1800

109 Connection between Meteorologic Conditions and Acute Febrile Diseases. (Undersøgelse af meteorologiske Kombinationers Forhold til visse akute, febrile, reumatiske, katarralske og infektiøse Sygdommes Genese.) H. Hansen.

October 15, No. 42, pp. 1801-1836

110 *Hematuria with Appendicitis. A. Nielsen.
111 Industrial Accident Insurance from Medical Standpoint. (Vor Ulykkesforsikringslovgivning og Lægerne.) V. L. Faber.

110. **Hematuria with Appendicitis.**—Nielsen has found records of 19 cases in which hematuria occurred apparently secondary to appendicitis, and in his own experience the microscope has shown blood corpuscles in the urine in a surprisingly large proportion of the cases. This occurred, namely, in 6 of 33 cases of chronic appendicitis and in 3 of 7 acute cases. The discovery of microscopic hematuria cannot be accepted, therefore, as an always reliable sign of a concrement in the kidney in dubious cases.

The Journal of the
American Medical Association
Published Under the Auspices of the Board of Trustees

Vol. LXIII, No. 23 CHICAGO, ILLINOIS DECEMBER 5, 1914

THE USE OF BOILED MILK IN INFANT-FEEDING*

ROGER H. DENNETT, M.D.
Adjunct Professor of Pediatrics in the New York Post-Graduate Medical School
NEW YORK

There are two distinct and entirely different reasons for boiling cow's milk during the first year of an infant's life: first, to destroy any harmful bacteria which the milk may contain, and by so doing to prevent disease; and second, to make the milk more digestible and to prevent or overcome any digestive disturbances, provided boiling has this effect. In this country the bacteriologic content of milk has attracted so much attention that we have not studied sufficiently the difference in the digestibility of boiled and unboiled milk, for we must study the problem entirely apart from the bacteriologic side.

All pediatrists are agreed that milk from healthy tuberculin-tested cows, and with a low bacterial content, is advisable for infant-feeding purposes. It is the general consensus of opinion in America that good milk need not be boiled, although some authorities are of the opinion that all milk fed to infants should be pasteurized. We are also agreed that when it is impossible to procure good milk, sickness can be avoided by pasteurization or boiling, and that one or the other is necessary when a good milk-supply is not available. The only question then, so far as the bacteriology of milk is concerned, is whether or not pasteurization or boiling of milk may be continued over a prolonged period without harmful results.

Perhaps an even more important phase of the question is whether the boiling of cow's milk so changes it that it is better borne by infants who have a low digestive capacity or who are suffering from actual digestive disturbances.

Our problem, then, divides itself into several subheads:

1. Does the prolonged use of boiled milk cause nutritional disorders, such as rickets, anemia, malnutrition, poor musculature or scurvy?
2. Does the change from unboiled to boiled milk cause digestive disturbances when fed to infants who have no difficulty in digesting unboiled milk?
3. Does the change from boiled milk to unboiled milk ever cause digestive disturbances?
4. Does boiled milk aid us in overcoming digestive disturbances such as intestinal indigestion with or without diarrhea or vomiting?
5. Does boiled milk cause constipation?
6. Is boiled milk as readily assimilated as unboiled milk, or is the nutritional value of milk lessened by boiling?

There are three ways of attacking these problems: first, laboratory experiments; second, animal experiments, and third, clinical observations on babies. There has been a great deal of work done and there is a vast amount of literature from the first and second points of view, but very little has been written on the clinical side of the question. Laboratory and animal experiments are very valuable, but the real test of any feeding problem is the actual results obtained in a series of babies who are carefully observed over a long period of time. Most of those who have written on this subject have concluded that actual clinical observations were necessary to determine the relative value and usefulness of boiled and unboiled milk in infant-feeding.

Some of the animal and test-tube experiments, although interesting and instructive, do not throw any real light on the practical problem of feeding. For instance, whether calves do as well on boiled cow's milk as they do on unboiled milk of their own species, and whether babies do as well on boiled human milk as unboiled milk of their own species cannot help us to decide the problems which I have enumerated above. At best the feeding of cow's milk to babies is an artificial procedure, and we must not allow such analogies to confuse us.

In approaching the subject from a clinical point of view, it is necessary that the babies on whom any feeding experiments are tried should have good care and the proper hygienic surroundings in order to be under the most favorable and natural circumstances. For this reason, it would be better not to take institution infants or those in the lower walks of life whose hygienic surroundings are poor. I have selected for my cases my own private patients and a few of the better class of dispensary patients whose intelligence can be relied on to carry out the directions ordered.

THE QUESTION OF NUTRITIONAL DISTURBANCE

1. Does the prolonged use of boiled milk cause nutritional disorders, such as rickets, anemia, malnutrition, poor musculature or scurvy? At the very start we must realize that in this question we are hampered by tradition. We have all been taught and have heard it repeated so many timse that boiled milk was liable to cause constitutional disturbances, that it is difficult to put oneself into the position in which his mind is open. Where this theory originated I do not know, but surely there is no conclusive evidence found in the literature to prove that boiled milk does cause these disturbances. Morse, in a very thorough review

---

* Read before the Section on Diseases of Children at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

precaution taken in the proper icing of the milk, care of the bottles, nipples, etc., in many instances by a trained nurse who is thoroughly familiar with the dangers of milk infection.

A very interesting experience occurred some years ago during my summer service in the babies' wards of the New York Post-Graduate Hospital, when I was first working with boiled milk. There were thirty cases of various kinds of gastro-enteritis that were being bottle fed in the wards. I had been rather blindly giving boiled milk as a routine for two weeks with varying success, during which time not a single one of the infants had any tough, hard curds in the stools. A sweeping order was given to stop boiling the milk and in almost every instance the curds appeared. In three days another sweeping order was given to boil all the milks, and in from twenty-four to thirty-six hours the stools of all the babies were free of curds. This experience has since been repeated so frequently in so many of my cases that there cannot be any doubt that changing from boiled to unboiled milk is a cause of digestive disturbances.

4. Does boiled milk aid us in overcoming digestive disturbances, such as intestinal indigestion with or without diarrhea, or vomiting? There are so many different factors that enter into the treatment of the various digestive disturbances that one must be careful when he attributes his success in treating a single case or a series of cases, to any single one of these factors, such as the boiling of the milk. The intervals between the feedings, the quantity at a feeding, the caloric value of the food, the amount and kind of sugar used, the addition of starches or dextrinized starches, the dilution, the percentages of fat and protein, the kind of milk used, the proper preparation of the food, and carrying out of the directions, all play an important part in overcoming digestive disturbances. It may be assumed that intestinal or gastric indigestion cannot be influenced by any procedure when the details are not properly carried out.

It has been my custom to begin the treatment of almost all of my cases of simple intestinal indigestion (and this does not include cases of infectious gastro-enteritis), with a mixture of about one-third milk and two-thirds water boiled as described above. No starch or sugar or alkali is added to the mixture. The simplicity of this procedure and the almost universal application of it eliminates many complicating problems, and since it is almost always successful in overcoming the digestive disturbances in the proper class of cases, it is fairly easy to determine what part the boiling of the milk plays in the success of the treatment. In other words if, in a certain class of babies, the universal use of one-third milk and two-thirds water boiled will overcome the digestive disturbances, it is only necessary to use the same mixture, unboiled, in a series of the same class of cases to determine whether the boiling of the milk is, in part at least, responsible for the good results obtained. It is very evident from my experience that many cases of intestinal indigestion cannot be successfully treated with this mixture unboiled.

The following case, picked out at random, is typical of the series of cases which were treated with boiled-milk mixtures:

A. P., boy aged 4 months 2 weeks. Birth weight 9 pounds 8 ounces. Present weight 10 pounds 8 ounces. Temperature 98.6. Skin rough, very poorly nourished, milk malnutrition, good bony development. Previous food, 7 per cent. top milk, 13 ounces; water, 19 ounces; lactose, 7 teaspoonfuls; 4 ounces every three hours; seven feedings in twenty-four hours. Stools: Six or seven in twenty-four hours, green, watery, with mucus and curds. Appetite: Hungry. Sleep: Poor. Vomiting: None.

Treatment: Milk, 10 ounces boiled; water, 20 ounces boiled; no sugar; 4 ounces every three hours; seven feedings in twenty-four hours.

In three days there were two yellow, soft, homogeneous stools without mucus or curds, which remained normal thereafter, when the milk was increased and sugar added.

In fifty-two cases treated with this boiled-milk mixture the stools became normal in from two to five days. The ages varied from 3 weeks to 1 year. The stools varied from three to twenty per day, all of them showing evidences of indigestion and most of them containing mucus and curds. As many of these cases were treated in summer as in winter. The weights varied from 4 pounds 5 ounces to 19 pounds 4 ounces, the majority of them being small, emaciated, young infants. The previous feeding varied from simple barley gruel, which in some cases had been used for a prolonged period without overcoming the diarrhea, to the more complicated top milk and whey mixtures and the various proprietary foods. There were all grades of intestinal indigestion, but no acute infectious diarrheas are included in the group, as it would seem as though such cases have too many complicating elements to be of any value in deciding whether boiled milk is more easily digested than unboiled milk. However, it may be said in passing, if boiled milk is more easily digested than unboiled milk it would naturally follow that cases of acute infectious diarrhea which require milk feeding should receive the milk boiled.

The series of cases in which the unboiled milk was used in the same dilution is small, because of the poor results obtained, as it did not seem fair to the infants to allow them to continue with the unboiled milk since the stools did not improve under this treatment. A typical case treated with the unboiled milk is as follows:

L. L., girl aged 4 months. Weight, 9 pounds 14 ounces. Temperature, 98.6. Skin, smooth. Poorly nourished, good bony development. Previous food: Ten per cent. top milk, 5 ounces; water, 20 ounces; lime-water, 2 teaspoonfuls; milk-sugar, 4 teaspoonfuls. Stools: Three, loose, watery, with much mucus and curds. Vomiting: A great deal at every feeding. Appetite: Ravenous. Sleep: Poor.

Treatment: Milk, 10 ounces, unboiled; water, 20 ounces, unboiled; no sugar; 4 ounces every three hours; seven feedings in twenty-four hours.

At the end of a week the stools were not only not improved but were more numerous, and large, tough curds took the place of the soft, fatty ones. The food was then boiled and in three days more the stools became smooth, homogeneous, free of curds and mucus.

There were ten cases in this series which included the same kind of babies as in the boiled-milk series. In only two did the stools clear up without resorting to the boiled milk, and those were infants that had formerly been receiving extremely bad feeding, one a very high fat and the other very high sugar. In the other eight the diarrhea was allowed to go on for seven days in three cases, nine days in three cases, and twelve days in two cases, before the boiled-milk feedings were instituted. In all of these cases the stools became normal inside of five days after beginning the boiled milk.

These boiled-milk mixtures are particularly useful in the small, young, poorly nourished infants, who do not do well on an exclusive carbohydrate diet, such as is so frequently given for a few days before starting milk feedings. It is probably the experience of all of us that the older, well-nourished infants, say above 6 months of age, who have *intestinal indigestion*, are best treated with either an entire cessation of food for from twelve to twenty-four hours, or a starch diet such as the various gruels and perhaps bread pap. But the younger, smaller infants and those with malnutrition who are suffering from the lack of food do not do well with this treatment. It is not an uncommon experience to see infants of this class that have been fed barley-gruel for a period of a week or more with no improvement in the stools and with a marked loss in weight and strength.

It is not easy to determine the effect of boiled milk on the gastric digestion. Often severe vomiting was stopped or the severity much diminished when boiled-milk mixtures were given in simple dilutions. However, this generally occurred in infants who came under observation for the first time, and whose feeding had previously been more or less irrational. Besides that, the sugar is usually cut down in amount and many other proper changes are made. On the other hand, there are certain infants whose vomiting does not stop with the boiling of the milk.

I have certainly never seen vomiting caused by the change from unboiled to boiled milk, nor am I sure that I have seen it caused by the change from boiled to unboiled milk. Undoubtedly the large, tough curds that are seen in the stools of some infants fed with unboiled milk are originally formed in the stomach, and unboiled milk stays in the stomach longer than boiled milk, both of which facts Brennemann has shown.

CONSTIPATION

5. Does boiled milk cause constipation? Constipation in the bottle-fed has so many different causes that it is difficult to prove what part the boiling of the milk plays in its etiology. In many of my patients who were constipated when the boiled milks were started, the constipation was overcome during the period that the boiled milk was fed. In others the constipation persisted while on boiled milk but was relieved when unboiled milk was given. Still others who were constipated on the boiled milk feeding were just as constipated after the feeding was changed to unboiled milk. None of the babies that received the malt-soup mixtures were constipated at any time while taking this food, which shows that even if constipation is caused by boiled milk and water mixtures, adding certain elements to the food will overcome the constipation in spite of the boiling. Infants who have diarrhea at the time that boiled milk is instituted often acquire a much welcomed constipation. The constipation is then usually overcome as sugar is added to the food, and the food is increased in quantity and strength.

Of the thirty-one babies that were constipated at some time while they were receiving boiled milk as a food, in nineteen the constipation was overcome before the food was changed to unboiled milk, in six the constipation was relieved by stopping the boiling and in six others the constipation persisted in spite of the change from boiled to unboiled milk.

It would seem that although constipation more frequently occurs in babies fed on boiled milk, in certain cases it may be overcome while the baby is fed on boiled milk, and stopping the boiling does not always stop the constipation.

NUTRITIONAL VALUE

6. Is boiled milk as readily assimilated as unboiled milk, or is the nutritional value of milk lessened by boiling? This is a phase of the question that cannot be decided by clinical work. There is a certain loss of fat and protein when a scum is allowed to form on top, but if the milk is stirred constantly and brought to a boil rapidly this scum is not formed. It is my opinion that even when this detail is carried out, there is a small loss in the nutritional value of the milk. My only evidence, which *is not at all conclusive*, is based on the increase in infants' weight on stated amounts of boiled and unboiled milk.

CONCLUSIONS

1. Clinical evidence of the comparative usefulness of boiled and unboiled milk in infant-feeding is of value and desirable.
2. The prolonged use of boiled milk if properly administered does not necessarily cause nutritional disorders such as rickets, anemia, malnutrition or poor musculature.
3. Scurvy may be avoided when boiled-milk feedings are given, by the administration of orange juice.
4. Boiled milk does not cause digestive disturbances in normal infants, and is, therefore, not more difficult to digest than unboiled milk.
5. Boiled milk aids us in overcoming digestive disturbances.
6. The change from boiled milk to unboiled milk may or may not cause digestive disturbances.
7. Boiled milk is probably more apt to cause constipation than unboiled milk, but in certain cases the constipation may be overcome while on boiled milk, although it is not always overcome when the boiling is stopped.
8. The evidence is not conclusive whether the value of the milk is lessened by boiling or not.

ABSTRACT OF DISCUSSION

Dr. Frank C. Neff, Kansas City: I think if one looks over his case-records of scurvy he will find it more or less difficult to determine just what sort of feeding has been responsible for this. I was interested in the report of Dr. Brennemann in which he stated that recovery ensued in a well-developed case of scurvy from the use of boiled milk; there was no other food and no other medication and it cleared up as quickly as scurvy often clears up under the administration of fruits. I have also seen cases of scurvy develop during the *administration of raw milk*. Such a case I saw last year. One is inclined to doubt that a moderate heating of milk has any relation to the production of scurvy.

Dr. L. T. Royster, Norfolk, Va.: I give percentage feedings as a routine, using cream, skimmed milk, water and carbohydrates. I also believe in using home modification when possible. We have in Norfolk good certified milk, also a laboratory. I have also a number of patients coming from the surrounding country for many miles, who cannot get either laboratory milk or certified milk, and in those cases I use home modification. The milk-supply being so doubtful, I never hesitate to boil the milk and have never seen any deleterious results therefrom. As a rule I use orange juice in those cases; but sometimes do not, and have never seen any bad symptoms, even in cases in which the orange juice was not used. I saw some of Dr. Leopold's cases last summer and followed them with much interest, and, having a number of institution patients myself, tried the treatment on them on my return. I got good results in the majority of cases. Some of them, especially when there was bad nutrition to start with, did not show as good results as a fairly normal child on normal feeding. Referring to the oft-discussed question of institution babies, one of the main reasons why institution babies do not do well is that they do not get as much individual care as a home baby. I believe whenever you go beyond four babies to a nurse in an institution you are on the ragged edge, and the further you get away from that, the poorer will the results be. In my own experience, when I have one nurse to four babies, I practically never have a case of institutionalism develop. I also believe that harm from boiled milk has been much overrated.

Dr. H. Lowenburg, Philadelphia: I have been using boiled milk for the last three years, usually in combination with flour, or old-fashioned flour-ball. My results have been according to Dr. Dennett's observations that it has an excellent effect on the stools, immediately causing disappearance of the curds, and change in color to golden yellow. My attention was called to an article in The Journal, Feb. 22, 1913, p. 575, by Brennemann, who did a lot of experimental work showing the effect of coagulants on the curd of boiled milk, and indicated clearly that these curds resembled human milk more than the unboiled milk. The possibility of scurvy has always interested me also. Every time I get a case of [illegible]urvy I cure the patient with raw milk, and I have never [illegible]l a case of scurvy develop in my own work. That is [illegible]obably due to the fact that all the children get beef broth and vegetable broth. I never use orange juice.

Dr. Charles Douglas, Detroit: As to boiled or pasteurized milk, from twelve to fifteen years ago I was a very strong advocate of raw milk. I talked it among my patients and used it, and I found, after doing so for a few years, that my results from boiled milk were much better. I would not think of going back to raw milk. Scurvy is so easily cured that I do not think it is worth talking about. If I see any suspicious symptoms I put in a little orange juice and get rid of scurvy in that way. With regard to the curds in raw milk, if the amount of raw milk is reduced 1 or 2 ounces in the day's feeding, the curds will disappear. The change to boiled or pasteurized milk impressed me that a child could not digest as much raw as boiled or pasteurized milk, as curds did not appear when the latter was given.

Dr. George Dow Scott, New York: I believe milk is changed through boiling. It seems to me that when the cow gives a natural food, boiling it is not only unnecessary but harmful. When we get a physiologic food from the cow it is only necessary for us to modify it in the raw state sufficiently so the child can take it. I see advantage over the old wine-whey, in Schloss' mixture. If raw milk is modified with the proper amount of fat protein and carbohydrate, the child will progress. The question of scurvy is always brought forward. Recently I read an article in New York quoting over 100 different authors on scurvy. I had to wake my audience up every little while because it was going to sleep listening to my numerous quotations. I think scurvy comes from a poor condition of the milk due to delay in handling and in getting it from the dairy to the consumer. That certainly has much to do with it. I do not agree with Dr. Douglas that scurvy can be cured in a few days. I think it is a long-drawn-out condition, and takes prolonged treatment to cure.

Dr. G. W. Graves, New York: I have seen no less than four severe cases of scurvy develop under boiled-milk feeding, in the hands of perfectly competent practitioners, and know that the condition has been most serious in the eyes of the families. The children have been quite ill and have suffered excruciating pain; and the anemia has been very marked. When boiled milk cannot be found to be the cause in such cases, pasteurized milk may be. ("Raw" milk is a term very frequently applied to pasteurized milk.) Boiled milk has a distinct value, but when cooked milk is used, it cannot be emphasized too strongly that orange juice, potato water, or some other antiscorbutic should be employed.

Dr. J. L. Morse, Boston: It does seem a great pity to speak of any rule or method of infant-feeding. There are just two reasons for boiling milk—one is that bacteria are in the milk, the other is that there is a disturbance of the casein digestion. We know that boiling the milk will kill bacteria and that it makes the digestion of casein easier. When we have casein indigestion, boiling is one way to correct it. I would rather feed babies continuously on raw milk than on boiled milk. As to whether boiled milk causes scurvy, the only statement we can make regarding the etiology of scurvy is that no one knows anything about it. We all have certain ideas. I have found that, during the last few years, the condition which has been more constantly present than any other in the feeding of the babies which I have seen with scurvy, is that the milk has been heated in some way. Yet I feed babies on both boiled and raw milk.

Dr. Roger H. Dennett, New York: I do not agree with Dr. Morse's last statement. I do not believe that, after an extensive use of boiled milk, anybody can possibly say the boiling of milk has no effect except in destroying bacteria and in overcoming protein indigestion. I have seen, for instance, an infant that has had a prolonged diarrhea treated perhaps for a week or two with barley gruel, which we all agree is a mistake. Inside of three days after feeding this child boiled-milk mixture the stools were back to normal for the first time. This infant was having three, four and up to seven loose, mucous stools a day, and inside of three days of the boiled-milk feeding, the stools became normal. This is not protein indigestion. As I have shown in my paper, the same results cannot be obtained with the same feedings when the milk is given raw. Babies will stand a higher protein better when the milk is boiled.

FRAGILITAS OSSIUM*

MAURICE OSTHEIMER, M.D.
Associate in Pediatrics, University of Pennsylvania
PHILADELPHIA

In 1897 Dr. Griffith[1] was able to collect sixty-seven cases of "idiopathic osteopsathyrosis" in infancy and childhood. He included under this head all cases of multiple fractures occurring before birth, at birth and after birth, in which no cause for the bone fragility could be found. The German writers still use the term "osteogenesis imperfecta" for the cases found at birth, while the French call them *"dysplasie periostale;"* and both reserve "idiopathic osteopsathyrosis" for the condition of multiple fractures, of an unknown cause, occurring later in infancy and childhood. There can be little doubt now that these two conditions are identical, being but different stages of the same disease, as is shown by Axhausen,[2] Bamberg,[3] Frangenheim,[4] Hagenbach,[5] Hammond,[6] Hartmann,[7] Lipschütz,[8] Looser,[9] Matsuoka,[10] Porak and Durante,[11] M. B.

---

* Read before the Section on Diseases of Children at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

* Because of lack of space this article is abbreviated in The Journal The com-
by omission of tabular matter and accompanying references. The in the
plete article appears in the Transactions of the Section and in the author on
author's reprints. A copy of the latter will be sent by the author on
receipt of a stamped addressed envelope.

1. Griffith, J. P. Crozer: Am. Jour. Med. Sc., 1897, new series, cxiii,
426.
2. Axhausen: Gedenkschrift für Rudolph von Leuthold, 1906, ii,
525; Deutsch. Ztschr. f. Chir., 1908, xcii, 42.
3. Bamberg and Huldschinsky; Monatschr. f. Kinderh., 1911, x,
325.
4. Frangenheim, Paul: Ergebn. d. Chir. u. Orthop., 1912, iv, 134.
5. Hagenbach, E.: Osteogenesis imperfecta tarda, Chir. Habit.
Schrift, Basel, 1911; Frankf. Ztschr. f. Path., 1910-11, vi, 398.
6. Hammond, Roland: Am. Jour. Orthop. Surg., 1911-12, ix, 615.
7. Hartmann: München. med. Wchnschr., 1911, lviii, 922; Deutsch.
Ztschr. f. Chir., 1911, cxi, 383.
8. Lipschütz, Alexander: Berl. klin. Wchnschr., 1908, xlv, 866;
Wien. klin. Rundschau, 1911, xxv, 37, 55, 69, 87 and 105.
9. Looser, E.: Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1905-6, xv,
161.
10. Matsuoki, M.: Deutsch. Ztschr. f. Chir., 1909, xcviii, 407.
11. Porak, C., and Durante, G.: Nouv. iconog. de la Salpêtrière,
1905, xviii, 507.

Schmidt,[12] Schuchardt,[13] Sumita,[14] Ziegler[15] and others. The name originally given to this condition, together with "achondroplasia" ("chondrodystrophy foetalis"), was "congenital or fetal rickets." At that time "achondroplasia" had not yet been differentiated from "osteogenesis imperfecta." Birnbaum[16] noted but one case of "osteogenesis imperfecta" among 4,500 births in the Göttingen clinic, showing how very rare the condition is. Vrolik[17] first used the name "osteogenesis imperfecta;" Lobstein[18] called it "osteopsathyrosis"; Kundrat[19] called it "osteoporosis congenita"; Marchand[20] called it "osteomalacia congenita;" Klebs[21] and Hochsinger[22] used the term "fragilitas ossium." We prefer "fragilitas ossium" since it accentuates the chief clinical symptom of the disease.

We have used the term "fragilitas ossium" to include both types of cases, (1) the fetal type found either at birth or soon afterward, associated with imperfect bone formation and multiple fractures (imperfect osteogenesis or periosteal dysplasia), these cases commonly not surviving beyond the second year of life; and (2) the congenital type, found in infants and children, at birth or later, with fractures recurring often until puberty or even until adult life, associated with similar bone changes (idiopathic osteopsathyrosis), which children if well cared for, survive, but often in a badly crippled condition. Our extensive review of the literature has brought to light 126 cases since 1897. Like Dr. Griffith, we have rigorously excluded symptomatic cases (with three fractures or less) for which any cause could be discovered, such as secondary absorption due to rickets, osteomalacia, scurvy, or old age; osteomyelitis or tuberculosis of bones; syphilis, nervous affections, tumors, cysts, etc.

We report the following case from Dr. Griffith's service at the University Hospital. For permission to make this report we are indebted to Dr. Griffith; for the case-history, to Dr. M. B. Magoffin.

CASE REPORT

History.—A girl, 3 years old, of Russian-Jewish parentage, was admitted March 25, 1913. She was breast-fed up to one year; since then she has been carefully fed. She never had much indigestion. There are three other children, living and well. There is no history of fracture on either side. Her only illness was whooping-cough during the winter of 1912-13. Her mother states that "she breaks her leg almost every time she tries to stand up." At 1½ years she broke her left femur; at 22 months, right femur; at 2 years, left femur; at 26 months, left femur; at 28 months, right femur; at 31 months, left femur, and on March 21, 1913, at 3 years, she fractured her left humerus. She had bumped into a door gently.

Physical Examination.—She is quite intelligent, noting everything about her, and very much spoiled. Though undersized, she is fairly well nourished; skin is warm and moist; musculature is good, except in legs. Head and face are broad, showing marked protruberance of the parietal bones, just above and in front of the ears. Both sclera are deep blue in color. Her ears, nose and mouth are apparently normal. There is no craniotabes. Her neck is short. The posterior cervical glands on the left side are markedly enlarged and hard. Thorax is pigeon-breasted, with prominent sternum. Expansion is good; both sides equal. The lungs are normal both to percussion and auscultation. The heart dulness extends from just outside the right edge of the sternum to the left midclavicular line and upward to the third rib. The apex beat, which is not visible, is palpable in the fifth interspace, in the midclavicular line. A soft blowing systolic murmur is audible; the second sound at the pulmonary area is accentuated. The rhythm is rather irregular and occasionally a beat is omitted. Her pulse is small, of moderate tension. The liver is palpable just below the costal margin. The spleen is not palpable. The inguinal glands are somewhat enlarged and hard, on both sides. There is considerable forward bowing of both femora, the evident result of the many fractures. Her left humerus is in plaster. Knee-jerks are normal on both sides. Examination of the blood showed erythrocytes 4,550,000, and leukocytes 10,200, with 48 per cent. polymorphonuclears, 1 per cent. mononuclears, 48 per cent. lymphocytes, and 3 per cent. eosinophils. Both von Pirquet and Wassermann reactions were negative.

Measurements, made with a pelvimeter (April 4, 1913), compared with those of a normal child then in the ward, were:

	Our Case cm.	Normal Child cm.
Biparietal diameter	14¾	14
In front of ears (4 cm. below that above)	15¼	12
Occipitofrontal diameter	16½	17½
Nasal to base of occiput	12	13½
Between malars	10½	11
Root of nose to top of chin (mouth closed)	9	9

The measurements with a tape-line were:	Inches	Inches
Circumference of head at parietal eminence	19⅞	20¼
Occipital protruberance to base of nose	12⅛	12⅝
Neck	8⅞	9½
Circumference just above ears	18⅞	19¼
Half-circumference just above ears (posterior)	9½	9⅝
Half-circumference just above ears (anterior)	9⅜	9⅝

Before a Roentgen-ray picture was taken she developed gonorrheal vulvovaginitis and was immediately sent to the Philadelphia General Hospital. Diligent search again led to her discovery six weeks ago, the family having moved three times. She is now even more spoiled than last year, and has broken each femur once in the past year, the left when 41 months old, the right at 45 months. She recovered rapidly each time and now manages to walk about a little, by holding on to chairs, etc. The family are constantly expecting her to break her legs again. There is more bowing of the femor and slight atrophy of the muscles of the legs. Her parents refuse to allow her to be removed to the hospital even for a Roentgen-ray photograph; in fact they refuse to allow her to be touched, she is so afraid of doctors. She looks quite anemic. To resume: Between the ages of 1½ and 4 years she has had nine fractures, breaking her left femur five times, right femur three times and left humerus once.

Dr. Griffith has also kindly given us notes of another case, which occurred in his private practice (1905-1906). This case appears in the table as No. 43. We have tabulated from the literature 124 cases, in addition to the 67 cases collected by Dr. Griffith in 1897, making 193 cases altogether. Besides, we learn that Dr. Walz showed a patient at the meeting of the Aerztlicher Verein, Stuttgart, on October 10, 1912,[23] but we have been unable to find any details of this case. Nor was it possible to procure a copy of the dissertation of Fridericia Gräfin von Geldern-Egmond (Zurich, 1897), in which another case is recorded.

---

[12] Schmidt, M. B., in Aschoff, L.: Pathologische Anatomie, 1913, ii, 193.

[13] Schuchardt, K.: Deutsch. Chir., 1899, No. 28, p. 65.

[14] Sumita, Masao: Deutsch. Ztschr. f. Chir., 1910, cvii, 1.

[15] Ziegler, Ernst: Lehrbuch der speziellen pathologischen Anatomie, ii, 162.

[16] Birnbaum, Richard: Klinik der Missbildungen und kongenitalen Erkrankungen des Fötus, Berlin, 1909, p. 186.

[17] Vrolik: Tabulae ad illustrandam embryogenesin hominis et mammalium, Amsterdam, 1845.

[18] Lobstein: Traité d'anatomie pathologique, 1833, ii, 204.

[19] Kundrat, Hans, quoted by Paltauf: Der Zwergwuchs, Vienna, 1891.

[20] Marchand: Tagesblatt der 58 Sammlung deutscher Naturforscher und Aerzte, Strassburg, 1885, p. 422.

[21] Klebs: Arch. f. exper. Path. u. Pharmakol., 1874, ii; Handbuch der allgemeinen Pathologie, Jena, 1889, ii.

[22] Hochsinger, C.: Verhandl. d. Versamml. d. Gesellsch. f. Kinderh., deutsch. Naturf. u. Aerzte, 1908, lxxx, 337; Wien. klin. Wchnschr., 1908, xxi, 1614; Wien. med. Wchnschr., 1909, lix, 745.

[23] Walz: Deutsch. med. Wchnschr., 1913, xxxix, 45.

It will be noted that in eleven of these cases, how long the infant lived was not known at the time the case was reported. The age at death was recorded in twenty-four cases, the oldest having reached 22 months.

The sex of the 117 infants born alive was noted as male in 62 (53 per cent.); female in 37 (31 per cent.); not mentioned in 18. The first fracture occurred between birth and 3 years in 64 (73 per cent.); from 4 to 11 years in 11 (13.5 per cent.); while the last fracture occurred under 13 years in 34 (42 per cent.); between 13 and 21 years in 28 (34.5 per cent.); between 22 and 41 years in 5 (6 per cent.). In seven cases the time of the first fracture, in 15 the time of the last fracture was not mentioned. The latest fracture recorded occurred at the age of 41 years. The bones of the legs, especially the femora, were most frequently broken. In number the fractures varied from 4 to 106. The cause of the fractures was usually trivial, without force or injury.

In only eight cases (9.8 per cent.) was the condition known to have existed in either parent; while brothers or sisters suffered from fractures in 24 cases, (29.6 per cent.). Although Frangenheim[115] states that the majority of these infants are born dead or die soon after birth, our tables show 82 patients living (65 per cent.), 33 cases dead (26 per cent.), with the result unknown in 11 cases (9 per cent.). In 43 cases (52.5 per cent.) the condition was noted as decidedly crippled; in 32 (39 per cent.) the patients were not disabled, while in 7 cases they were too young to record any result. In six of these 32 patients the presence of dark blue sclera was noted. The association of dark blue sclera with brittle bones, as was observed in our case, has been commented on by Stephenson,[116] Harman,[117] Burrows,[118] Rolleston,[119] Conlon[120] and Cockayne[121].

BONE CHANGES

The best description of the bone changes is given by Nichols.[122] "There is evident lack of formative power in the bone tissues. Instead of new bone being formed by normal osteoblasts on a cartilaginous matrix, the bone trabeculae are produced by calcification of the cartilage cells. Both layers of the periosteum are thickened, forming non-laminated or imperfectly laminated dense bone, with no Haversian canals, but large marrow spaces, in which there are few trabeculae. The marrow is abnormal, containing much connective tissue. The trabeculae are studded with flattened osteoblasts, but there is no evidence of osteoid tissue. The process of bone formation is checked and abnormal. Metaplasia of cartilage is much greater than normal, while bone deposition is much less. The formation of periosteal bone is abnormal and incomplete." Frangenheim[4 and 115] also notes the imperfect bone production, with increased absorption of the scanty bone trabeculae. The bone productibility of the periosteum is distinctly inhibited. That there is sparse bone proliferation with increased absorption of bone substance is mentioned by Scheib,[11] Helwig[17] and Harbitz.[51] Harbitz[51] notes that the bones contain much less calcium salts than normal. Maier[88] also noted the lack of calcium salts and the "concentric bone atrophy." He calls attention to the fact that while the long bones are bowed, there is no real shortening; they are much thinner and their structure is changed. Nathan[76] lays stress on the bowing of the long bones which are not truly shortened. M. B. Schmidt[12] believes that there is normal or somewhat delayed proliferation in the cartilage, with scanty bone production on the part of both marrow and periosteum; as a result, the bones are thin, porous and very fragile. Very few osteoblasts can be found in any part of the skeleton.

Ziegler[15] states that the marrow cavity enlarges and the bone becomes porous and fragile. Thus fractures result readily. Doering[107] and Rebbeling[66] believe that the productibility of the periosteum is increased and that dysplasia occurs through abnormal absorption on the periosteal surface of the bone. The marked atrophy in the thickness of the diaphyses which results, is commented on by Schuchardt,[13] Rebbeling,[66] O. Schmidt,[65] Looser[9] and Kaufmann.[123] Lange[91] believes the fragility to be due to the fact that while normal absorption goes on inside the compact substance, no periosteal layers are laid down outside, so that the cortical layer becomes thin, bends and finally fractures. Sumita[13] describes a functional inability of the periosteal osteoblasts, with normal enchondral preparatory processes. Michel[28] found such marked diminution in periosteal bone formation that the bones were merely shells of calcified bone spicules. Goldthwait, Painter and Osgood[124] note that the process of bone formation is everywhere checked and abnormal. Klotz[37] states that the faulty bone production is the result of imperfect metaplasia of the perichondrium into periosteum. He considers this due to lack of stimulus, or to some inhibiting force acting on the osteogenetic tissues. Hildebrandt[40] believes that some injurious substance circulating in the blood prevents the absorption of cartilage and the formation of bone substance.

The fractures, which occur in the diaphyses only (Maier[88]) depend on structural changes in the bone (von Recklinghausen[64]). Kardamatis[59] believes that these changes in the structural relations must explain the spontaniety of the fractures of the bone substance. Lindemann[44] considers the primary affection to be of the marrow, with secondary changes in the periosteum. He found small cell infiltrations most marked in the marrow cavity and blames these for the occurrence of the fractures. Frangenheim[4 and 115] also believes that the cause probably lies in the abnormal marrow, which is not able to produce normal functioning osteoblasts.

The only blood count which was unusual was reported by Maier,[88] giving an increase of eosinophil leukocytes up to 14 per cent. In our case the eosinophils were only 3 per cent.

The diagnosis is not difficult in cases of the imperfect osteogenesis type. There is a premature or full term fetus, either born dead or living less than two years, showing more or less imperfect cranial ossification (sometimes with a membranous cranium), apparently shortened, bowed extremities and multiple fractures, both old and recent. In cases of the idiopathic

---

115. Frangenheim, Paul, in von Brun, P.: Neue Deutsche Chirurgie, 1913, x, 45.
116. Stephenson, Sydney: Ophthalmoscope, 1910, viii, 330.
117. Harman, N. Bishop: Ophthalmoscope, 1910, viii, 559.
118. Burrows, Harold: Brit. Med. Jour., 1911, ii, 16.
119. Rolleston, J. D.: Proc. Roy. Soc. Med. (Child. Sec.), 1911, iv, 96.
120. Conlon, F. A.: Boston Med. and Surg. Jour., 1913, clxix, 16.
121. Cockayne, E. A.: Ophthalmoscope, 1914, xii, 271.
122. Nichols, Edward H.: Keen's Surgery, ii, 51.
123. Kaufmann, Eduard: Lehrbuch der speziellen pathologischen Anatomie, 1911, ii, 663.
124. Goldthwait, J. E., Painter, C. F., and Osgood, R. B.: Diseases of the Bones and Joints, 1909, p. 505.

osteopsathyrosis type, the diagnosis is no more difficult, for multiple recurring fractures in infants and children, without explainable cause, could be due to nothing else.

The relationship between fragilitas ossium and achondroplasia is certainly close. According to Jansen[125] the short extremities in both conditions are due to compressibility of the scleroblastema by enhanced amnionic pressure and to vulnerability of the fast-growing cell groups. He believes that a small amnion must be formed in these cases. Cases of the imperfect osteogenesis type may resemble achondroplasia: in both instances the extremities appear shortened, the long bones bowed or curved, and the facial expression seems similar. But as Dieterle[38] notes, the primary changes in achondroplasia are in the cartilage, while in fragilitas ossium there is a functional disturbance of both periosteum and endosteum. Zurhelle[33] states that achondroplasia shows scanty growth of the cartilage cells and early cessation of enchondral ossification, while in fragilitas ossium there is functional inability of the periosteal osteoblasts, with resulting scanty bone production and normal or almost normal enchondral ossification. Hochsinger[126] explains that in achondroplasia the short limbs come from limitation of linear growth in the long bones; in fragilitas ossium from multiple fractures and bending of the shafts of the long bones as the result of a faulty process of ossification. Hartmann[7] calls attention to the value of the Roentgen ray in diagnosis, since it demonstrates the marked disappearance of bone substance in the lower extremities. Mourad[49] believes that the epiphyseal lines in the Roentgen-ray photographs make the diagnosis between fragilitas ossium and achondroplasia certain. This imperfect bone formation and the multiple fractures readily separate fragilitas ossium from achondroplasia.

Rickets and osteomalacia must also be differentiated from fragilitas ossium. Besides the bone changes, if fractures occur, they are few (less than three or four), and they occur with some injury. Rachitic changes have been noted during infancy in several of the cases of fragilitas ossium reported; but Roentgen ray and histological examinations later have excluded rickets. Hochsinger[22] reiterates the fact that fractures are rare in rachitis. Wieland[127] asserts the now general belief that there is no such condition as congenital rickets; while Escher,[128] in exhaustive investigations, was unable to find anything to make the diagnosis of congenital or fetal rachitis tenable. Reyher[129] considers it important not to let any case of rickets be included among the cases of fragilitas ossium.

Though cases of so-called "juvenile osteomalacia" have been reported by Axhausen,[2] Rees[37] and Anschütz,[93] careful observers have classified their cases as either fragilitas ossium or true rickets. Looser[9] called some of them cases of late rickets. But he is certain that no general disturbance of nutrition can cause fragilitas ossium. Scholz[89] thinks that it would look as though the cases of "juvenile osteomalacia" and fragilitas ossium were but different forms or stages of the same process. Schuchardt[13] defines osteomalacia as a lack of calcium in the finished bone, which is limited in its growth. The effects of softening are noted only in the diaphyses, which fact distinctly separates osteomalacia from rachitis. And the occurrence of few fractures, only rarely, and with serious injury, separates both rickets and osteomalacia from fragilitas ossium. Klose[90] says that "even if rickets or osteomalacia be considered the cause of fragilitas ossium, the question of the etiology of the high-grade fragility is not solved. Repeated fractures do not belong to either rickets or osteomalacia and we must see a special pathogenesis, etiology and anatomy in cases in which multiple fractures occur."

PROGNOSIS

The prognosis is usually unfavorable. In spite of the best care fractures recur without much cause and over one-half of all patients remain badly crippled as a result. In 76.5 per cent. of our cases the last fracture occurred under 22 years of age, yet our records show fractures as late as 33, 38 and 41 years. While in 39 per cent. of our cases the result is given as fair, it should not be forgotten that reports of later conditions in these patients are not available; were they recorded, more badly crippled cases would undoubtedly be added to the list.

TREATMENT

The treatment, outside of the local treatment for each fracture as it occurs, consists in attempting to prevent the recurrence of fractures. When infants, these children are carefully guarded on mattresses, and they are hardly permitted to move. Fresh air, careful hygiene and good food are of importance. Cod liver oil, phosphorus and calcium salts have all been given, but without much result. As the etiology remains undiscovered, no beneficial method of treatment has as yet been found. Undoubtedly the condition is congenital; it would seem probable, therefore, that some fault of metabolism in the pregnant woman is the cause of fragilitas ossium in her offspring.

ABSTRACT OF DISCUSSION

Dr. E. A. Park, Baltimore: Will Dr. Ostheimer state why the name "osteogenesis imperfecta" would not be more appropriate than fragilitas ossium? Apparently the process is a specific one. There is a general activity of the osteoblasts throughout the bones, both at the junction of the cartilage and bone and in periosteal ossification. It seems to me osteogenesis imperfecta would be more proper. There is nothing in the term "fragilitas ossium" which implies a specific process. In the multiple fractures in rachitic bones, for instance, certainly a condition of fragilitas ossium obtains, but the picture in that condition is distinctly different from that which Dr. Ostheimer has described.

---

[125] Jansen, Murk: Achondroplasia; Its Nature and Cause, Leiden.

[126] Hochsinger, C.: Centralbl. f. Kinderh., 1909, xiv, 43.

[127] Wieland, Emil: Jahrb. f. Kinderh., 1908, lxvii, 675; ibid., 1909, lxx, 539.

[128] Escher, C.: Jahrb. f. Kinderh., 1902, lvi, 613.

[129] Reyher, P.: Ergebnisse der inneren Medizin und Kinderheilkunde, 1908, ii, 627.

Pedagogy Among the Chronic Insane.—E. F. Leonard, in the *Institution Quarterly* for September 30, reports an experience incident to his service on the staff of the Jacksonville (Ill.) State Hospital. An unusually obstinate patient was by degrees drawn out to take an interest in magazines and was one day found surrounded by a group of patients to whom he was reading and explaining an article. The reading circle grew and the hitherto morose patient's condition improved. He was persuaded to start a school among the other patients of his ward. The school was taken seriously by teacher and pupils (all patients); a library was instituted, a singing school and Sunday school started, and the ward, which had previously been somewhat violent and hard to interest even in a daily newspaper, gradually improved. The work was in progress for about four years, during all of which time the interest was sustained. The teacher patient was finally discharged from the hospital as recovered and is now earning a living for his family.

PREVENTIVE OTOLARYNGOLOGY*

BURT R. SHURLY, M.D.
DETROIT

We are suffering mentally, physically and financially from too many medical societies, too many new instruments and accessories and too many surgical operations with the name of the surgeon as the distinguishing pennant of the operation. It will soon be time to appoint a board of censors centrally located to which instruments and operations may be presented and which will approve those worthy of attention before the profession and public are subjected to so-called improvements.

The practitioner and specialist of this country is particularly distinguished for a keen uplifting interest in humanity, a broad sympathy and a devotion to the greater comfort and general welfare of the patient. It is still true, however, that the most noble and skilled exponent of our special art must pay homage and reverence to the greatest queen of all—Dame Nature; her ways of prevention, medication and cure must be ours.

The mind of the medical man in the last two decades has originated, elaborated, improvised and invented innumerable systems, methods and instruments to eliminate pathologic or other tissue from the nose, throat or ear, yet the pages of our literature on preventive methods of procedure in our specialty have been few indeed. The question of when not to operate may be uninteresting, but as a valuable consideration in the saving of life it is frequently as important in otolaryngology as in the surgery of the appendix.

It is unnecessary for us to follow the Mohammedan custom of daily chant, and open our office each day with a recital of the Hippocratic oath and ten laws of Dame Nature which must be obeyed, but it is fitting and proper that we should frequently ponder on the great and serious responsibilities of our calling. This applies especially to our overzealous radical colleagues who seem to consider surgery the only road to success. It takes a conscience, introspection, sympathy and a true sense of responsibility to realize that the limitations of one's individual surgical ability and training must be the guiding stars of decision and judgment. The value of any instrument, operation or method depends on proper selection and use.

Are we to ligate the carotid for tonsillar hemorrhage? Yes, if necessary; but if a brilliant and dexterous general surgeon is in an adjoining operating-room he should be called in as he can accomplish the work skilfully in half the time it would take a laryngologist. The old adage "An ounce of prevention is worth a pound of cure" applies to otolaryngology and may be resuscitated at this time with advantage. Prophylaxis is the text of the dentist as he merrily bores into the decayed tooth. We hear the pathologist assert that immunity and heredity explain the problem. Eugenics will reform the world, says the pediatrist. Sanitary science, hygiene and quarantine are the interesting themes of the internist.

The subject of preventive otolaryngology may be classified to include a system of observances that will offer the best protection or prevention to the individual or community of diseases of the nose, throat or ear.

Preventive medicine will not be appreciated by the laity or profession until a secretary of public health in the cabinet at Washington shall organize, develop and promote this subject with its special branches for the benefit of humanity.

The practical importance of the prevention of disease in the upper respiratory tract and the accessory channels of the ear grows on one as it is viewed from the biologic, sociologic, pathologic, or therapeutic point of view. Under the subclassification of protective otolaryngology it is possible to accomplish much of great practical value to the community at large.

Your Chairman of 1910, Dr. Jackson, has called attention to the necessity for compulsory labeling of poisons sold by grocers. There are many preparations of caustic alkali that have been accidentally taken by children, and many hundred cases of cicatricial esophagial stenosis must have occurred through laxity in making and enforcing laws regulating the sale of poisons. Our delegate should be instructed to investigate this matter and present another resolution on this subject to the House of Delegates if necessary.

The problem of noise and its deleterious effects on the auditory nerve, and the effect of dust on the upper air-tract can be modified by passage and enforcement of sane laws.

We should join heartily in the propaganda for medical and popular education and form a society of human animal welfare that will take precedence over that organized for the dog and the automobile. When the science of prevention fully arrives, every human machine will be examined semiannually and a careful record kept in card index form about every organ in the body including the nose, throat and ear.

The greatest sign of the times that operates for the prevention of disease is the gradual elimination of medical sects and the elevating of medical educational standards. The osteopathic, botano-eclectic or homeopathic otolaryngologist has been relegated to otolaryngologic Pompeii and is now metamorphosed into a broad, liberal-minded nose, throat and ear surgeon who can think as a pathologist, internist or therapeutist as the occasion requires.

It is a well-known fact that abuses to the metabolic functions, though expressed in the apparatus under our special observation, will affect others through the medium of the connecting branches of the sympathetic system. The neuroses, psychoses and other disturbances of the ductless glands and vasomotor system may be prevented only by the proper hereditary development of a stable vasomotor system with stable ductless glands. Proper environment, education, control of the nervous system and good immunity must be added factors.

The practical application of the laws of prevention concern us in a small measure at present as compared with the otolaryngologist of future decades. As infection is the all-important etiologic factor of acute and chronic pathologic change in the structures under consideration, the prevention of disease becomes a problem of great individual scientific interest in quarantine, sanitation, hygiene, immunity, heredity and sociology.

Can we prevent deafness, hypertrophic rhinitis, pathologic tonsils, adenoids or accessory sinus disease? How much are we interested in the study of insect carriers? Do we realize that the house-fly can carry active tuberculosis germs from the sputum and deposit active tuberculosis germs on our food?

---

* Chairman's address, read before the Section on Laryngology, Otology and Rhinology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, June, 1914.

we keenly alert to the possible dangers to our community of the suppurating ear of the ex-scarlet fever patient, or from the throat or ear of the diphtheria carrier? Do we take cultures from acute infections?

The prevention of disease of the accessory sinuses has become more difficult by the laws of evolution that made the postural change in man from a quadruped to a biped. Many unchangeable, etiologic factors of prenatal or postnatal structural origin make prevention difficult. Anthropology tells us that the modern Caucasian bears many marks of asymmetry or abnormal development that attend our higher civilization and departures from aboriginal conditions.

The medical inspection of schoolchildren has given the otolaryngologist a splendid field of statistical study and observation along the lines of prophylaxis. It would seem that the scientific fruit of this labor should be forthcoming in some future program.

What methods or theories have we evolved that will lessen the enormous number of pathologic tonsils and adenoids? We know that the nasopharynx and nasal passages, in infancy and childhood particularly, are the seat of constant histologic change. Under degenerative laws of disuse such as the olfactory sense, atypical structural integrity and lowered heredity and physical and moral standards, a direct tendency to pathologic change is encouraged. It is asserted by radicals, therefore, that as the adenoid is a menace and the gateway of infection, preventive measures demand in every case a thorough prophylactic operation in infancy. This ultraradicalism may be progressive and justifiable in the future, but watchful waiting in the absence of symptoms seems a more reasonable policy in the light of our present knowledge.

The faucial tonsil as an embryologic remnant deserves further research. Its function remains in the realm of speculation and theory and the immediate and remote effects of its infection are thoroughly and generally realized, yet the wanton destruction of any structure will bring a reaction. We must, therefore, temper our procedure with judgment and skill, and operate under the rules that we would apply to our own flesh and blood.

When devotion to medical research and education in our particular realm shall unravel the mysteries of infection and the artificial and biochemical production of immunity, when the internal secretions may be regulated at the will of the therapeutist, the otolaryngologist will assume his greater rôle in the broad field of endeavor of preventive medicine and therapeutics. Major nose, throat and ear surgery will remain exclusively for the man of surgical mind, training and ability.

As the millenium has not arrived we must work on in our field of special choice under the optimistic banner, "We will do the best we can."

32 Adams Avenue.

The Creative Mind.—It is in the putting forth of the hypothesis that the true man of science shows the creative power which makes him and the poets brothers. His must be a sensitive soul, ready to vibrate to Nature's touches. Before the dull eye of the ordinary mind facts pass one after the other in long procession, but pass without effect, awakening nothing. In the eye of the man of genius, be he poet or man of science, the same facts light up an illumination, in the one of beauty, in the other of truth; each possesses a responsive imagination. Such had Bernard, and the responses which in his youth found expression in verses, in his maturer and trained mind took the form of scientific hypothesis.—Foster.

ACUTE INSULAR SCLEROSIS AND ITS CONCOMITANT VISUAL DISTURBANCES *

FOSTER KENNEDY, M.D., F.R.S. (EDIN.)
NEW YORK

Man does not live by bread alone, but also by catchwords: and, too often, faulty diagnoses come through the attempt to apply to many types of the same disease a hide-bound ritual, a uniform formulary, a triad or pentad of mechanical tests laid down in text-book after text-book as "classical" and thereby conclusive. Of no abnormal state can these strictures be more properly made than of the familiar and obscure entity introduced to the world by Charcot as *sclérose en plaque*.

The clinical picture of this condition with which the printed word has made us familiar is that of a chronic disease characterized by a spastic paraplegia, nystagmus, so-called scanning speech and intention tremor—which latter, by the way, is no tremor in any sense of the word but is rather a true motor ataxia of purely cerebellar origin. Such are the requirements demanded of the disease by undergraduates and the majority of practitioners; the dogmatic authorities often fail to point out the essential fact that these symptoms are in no way necessary for diagnosis, that they occur only in a certain number of cases and, usually, in these at but a very advanced stage, and that they are mainly dependent for their production on a disturbance of the ponto-cerebellar fibers—a more or less casual occurrence.

The diagnosis should depend on a consideration of the age of the patient, on the history of the disease, and on the grouping of the symptoms rather than on the presence or absence of individual abnormalities of function. These are probably the result of transient edematous phenomena occurring irregularly throughout the central nervous system.

The vagueness of many pathologic terms is studied and is necessitated by our ignorance of the precise processes on which depend the early symptomatology of this disease.

The sclerosed tissue is invariably in the immediate neighborhood of blood-vessels, and the first step in the morbid process is apparently a flooding of the nerve-cells and fibers with fluid exudate, the vessel wall having been weakened and rendered permeable by the agency of a toxin or virus as yet unknown. Only by the hypothesis that such an edema exists can we explain the rushing onset and the rapid remissions and recoveries of some of these cases. The occurrence of such processes can only be assumed, in that post-mortem examinations are possible in the majority of instances only after the disease has long become chronic.

The scattered islets of hypertrophic glia are of doubtful causation; and no exact proof is forthcoming as to whether they are the expression of a primarily parenchymatous disease or of an inflammatory process affecting in the main the interstitial tissue. The clinical course of the disease as exhibited by its remissions and intermissions, its transient amblyopias, transient paralyses and transient attacks of subjective sensory manifestations occurring in its incipiency,

---

* Read before the Section on Nervous and Mental Diseases at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

Dr. Robert Bell Library
E. M. E. Medical College 29502

movement of the eyeballs has reappeared and is rapidly improving in all directions. It is accompanied by gross nystagmoid jerking. All movements are present in both the upper and lower limbs; those on the left side are stronger than those on the right. Gross loss of sense of position in all four limbs. No other sensory change.

June 11: Rapidly improving.

July 3: Pupils normal. Conjugate movement of eyeballs almost complete. Convergence impossible. Palatal reflex normal. Markedly emotional. All movements are present in all four limbs which are, however, both spastic and ataxic. Sense of position absent in upper, and impaired in lower extremities. Reflexes as before.

August 25: Improving daily. Diplopia is now present in distant vision, consequent on marked return of visual acuity. Speech scanning, syllabic, and explosive. Emotional. Ataxia in all four limbs but more marked on the left than on the right side. To-day attempted to stand. Astereognosis in both hands. Sense of position absent in the right wrist and fingers; also in fingers of the left hand. Reflexes as before. No rectal incontinence now. Is incontinent of urine about once a week.

September 28: Improving daily. Walks the length of the ward without help. Very slightly ataxic. Sphincters normal. Beyond changes in the optic disk there is now no trace of any previous involvement of the cranial nerves.

I have purposely omitted detailed mention of the behavior of the optic nerves and the consequent fluctuations in visual acuity. In such a cloud of symptoms as was shown by this patient it would be difficult closely to follow the various changes found in the optic disks; for this reason they will now be described separately.

On admission, as has been said before, patient was unable with the right eye to see a moving light. With the left eye the candle could be seen in the periphery of the field. Optic disks: Right: doubtful blurring of the inner edge. Vessels normal. Left: a rather dead-looking pallor in the outer temporal quadrants.

May 3: Right: veins considerably distended. All edges are blurred with the exception of that on the outer side. Color normal. The pit is naturally somewhat small—there is some whitish tissue in it which is possibly developmental. Hypermetropia plus 2 D. Disk seen with plus 3 D. Left optic disk as before.

It is to be remembered here that five weeks previous to this examination there was almost complete loss of vision in the left eye, a condition now rapidly developing in the right eye as well.

It is to be presumed that an ophthalmoscopic examination of the left disk carried out at the end of February would have revealed a venous distention and a blurring of the disk edges similar to the phenomena seen in the right eye in May. The condition seen in the left disk was a result of a previous inflammatory state which later occurred in the right optic nerve as well. Two types of congestive phenomena may occur in the optic nerve—the papilloedema consequent on increased intracranial pressure, and that known as retrobulbar neuritis.

The first is a purely mechanical condition, in which cerebrospinal fluid is forced from the main reservoir of the ventricles and the intradural space down the vaginal sheaths to appear at the point of lowest resistance — the nerve-head, whence it is drained into the sclera at a rate which varies with the type of formation of the eyeball—more rapidly and more effectively in myopic than in hypermetropic eyes. The second condition, however, has to do, not with the water-jacket of the optic nerve, but with the fibers themselves. As indicated by its name, the morbid process takes place posterior to the globe, is a true inflammation, and its occurrence is accompanied from the beginning by rapid loss of function in the affected fibers which lie in the bony walls of the optic canal. This loss in visual acuity is produced at first by the deterioration in the macular bundle which has as its consequence a central scotoma. Owing to the rigidity of the environment of the nerves, a degree of pressure will be produced which will quickly interfere with function; and, for the same reason, the degree of fluid transudation in the nerve-head will be less than is found in the mechanical abnormality first mentioned. In the latter, loss of visual function occurs but late in the disease and takes the form of a gradually increasing concentric contraction in the fields due to an organization of the edema into connective tissue. It follows, therefore, that as, in the case of retrobulbar neuritis, fiber constriction is produced by fluid exudate, and, in pressure papillo-edema, by solid connective tissue, the chances of recovery from blindness due to the former are much superior to those from blindness due to the latter.

This power of recovery, after the total destruction of vision, was admirably shown in the case under consideration, and it may here be said that permanent loss of sight practically never occurs as a result of insular sclerosis, however acute may be the initial seizure.

May 7: All the edges of the right disk were blurred except a small portion at the outer margin equal to a fifth of the total circumference of the disk. The veins and arteries showed little change in caliber. Swelling has increased by plus 2 D. An edematous appearance is seen spreading to the retina from the disk at the upper, inner, and especially the lower margins. Inner vessels slightly buried. Left optic disk: pale and unswollen.

Three days later: Right: whiter in temporal quadrants, outer edge fairly clear, vessels very small. Left disk as before.

May 17: Right: Swelling reduced by 2 diopters. Color pale. Left as before. Patient can count fingers at a distance of 3 feet with the left eye, but with the right can only distinguish an electric lamp if it be held in the periphery of the field.

May 28: Right: edges visible, blurring only in the upper and inner margins. Swelling almost gone. Color pale. Arteries very small.

June 7: Right: disk clear-cut with the exception of a woolly patch on the inferior temporal edge.

July 23: Both disks pale. Can count fingers on both sides.

August 25: Visual acuity: Right 6/30, left 6/20.

September 28: Right 6/12, left 6/12.

Case 2.—My second case is that of a Russian Jewess, aged 26, whom I saw in consultation with Dr. Frederick Peterson and Dr. Held, in the latter part of February, 1912. She had been married five years and had two healthy children. No history of lues. The Wassermann test in the blood-serum was twice found to be negative.

Present Illness.—Previous to May, 1911, her health had always been perfect. In that month, after a steam bath, she noticed that her legs were weak; they both felt numb. These symptoms appeared rapidly—within half an hour they assumed definiteness—and progressed in severity for two days, during which time she was also dizzy and complained of much blurring of vision in both eyes, with occasional diplopia. This entire attack lasted two weeks, by the end of which all trace of ailment had quite disappeared, so that she was thought by many to have gone through a hysterical seizure. Her recovery was such as to allow her to take up with much vigor the management of her shop, on which for four months she expended much physical and mental work. Again she had a sudden attack of blurred vision, which ended in complete loss of sight for two or three days' time. No sooner had partial vision been restored than she noticed in the glass one morning that the right side of her face was flattened and immobile and that she could no longer wink with the right eye. In other words, she had developed a complete right facial palsy of peripheral type. On the day of this observation she again had diplopia, the cause for which was seen on the same evening in a marked weakness of her right external rectus muscle. This situation was not maintained for long; her diplopia was replaced by another fleeting attack of blindness, during which she began to complain of numbness in the fingers of the left hand, which was in turn quickly followed by weakness and unsteadiness in both the extremities of the left side. This left-sided hemiplegia did not improve; it became more severe. Much diplopia and vertigo and frequent paresthesias in the fingers and toes of both sides were present, choking attacks made their appearance in January, 1912; in these respiration became slow and sighing, and the pulse dropped to between 45 and 50 a minute.

Examination.—The ocular fundi showed well-marked pallor in the temporal quadrants of both papillae—clear proof of the retrobulbar origin of the attacks of blindness. The physiologic pits were not filled in, nor was there any evidence of disturbance of retinal pigment. The pupils reacted briskly to light and on convergence but had poor muscular tonus. The right external rectus and the right side of the face were almost completely paralyzed. The left fifth nerve was affected, as shown by a deviation of the lower jaw to the left side on opening the mouth, and by a poor contraction of the left masseter as compared with its fellow on the right side. The soft palate was immobile; its reflex was absent but its sensitiveness was retained. The voice was very weak and was nasal in quality. There were regurgitations of fluid through the nose. Almost complete spastic paralysis of the left arm and leg. The right foot was dropped, owing to a flaccid palsy of the anterior tibial muscles. Patient was completely incontinent of both urine and feces. No sensory change could be made out, but this was perhaps owing to the impossibility of obtaining the patient's cooperation.

Course.—She succumbed to respiratory failure—a typical medullary death. Permission for necropsy was not obtained.

In this case the early symptoms pointed unmistakably to the pons as the main seat of the trouble; the possibility was considered of its nature being neoplastic rather than edematous and sclerotic, but that alternative was negatived by the ocular symptoms and especially by the ophthalmoscopic findings. The symptomatology was parallel with that in the first case and the issue would most probably have been similar had not the acuteness of the condition discounted the woman's resistance. To these two cases may be added a short account of a case that I saw in the service of Sir William Gowers.

Case 3.—A man, aged 22, Aug. 16, 1909, had diplopia, vertigo and dimness of vision in both eyes, which was progressive, so that on August 24 he could distinguish form only in the periphery of both visual fields. The pupils had marked retrobulbar reactions. Optic disks showed a low-grade swelling on both sides.

August 27: Pupillary reactions poorer and some limitation of conjugate ocular movement upward.

September 1: The light reflex, from being almost imperceptible, is now fair. Ocular movements almost normal again. Vision worse; patient now only able to perceive peripherally placed lights.

September 9: Patient can again recognize physician's hand.

September 24: Patient is able to count fingers at 3 feet distance with each eye; central scotomas maintained.

October 4: Numbness in the left leg; left-sided ankle-clonus and left extensor plantar response. Optic disks; pale in outer quadrants. No swelling.

October 6: Retention of urine. Numbness in right hand.

October 11: Rapid onset of spasticity in both lower extremities.

October 13: Complete bladder and rectal incontinence. Vision: Right, 1/36; left, 1/60.

October 14: Numbness in both hands.

November: Weakness in right arm. Central scotoma in each eye. Complete paraplegia with sphincter palsy.

Repeated examinations of the cerebrospinal fluid failed to show any abnormality. This with a negative history served to exclude cerebrospinal lues.

In all these cases there were marked fluctuations in the severity of the symptoms; in none could the clinical picture be said to correspond with the textbook descriptions of the disease; but the symptom grouping and the variability of progress in each case left no room for doubt as to the correctness of the diagnoses.

20 West Fiftieth Street.

ABSTRACT OF DISCUSSION

Dr. George A. Moleen, Denver: It is to be noted that the cases reported by Dr. Kennedy were drawn from the country in which multiple sclerosis is most frequent. Our German friends would have us believe that many of these cases are really cases of syringomyelia and are not seen in this country so frequently. We generally hold that with such degenerative processes as multiple sclerosis characterizes we find retrobulbar atrophy more frequently. I am glad to hear suggested an explanation of the papilledema, even a primary hyperemia or a primary sero-edema, however localized. The majority of cases of multiple sclerosis which one sees here shows limited fundus changes, and yet I do not believe that they are searched for with the care which their importance demands. I do not believe I have ever seen a case of edema in multiple sclerosis. Dr. Prentiss and I, in the National Hospital, discussed the question whether it was the rule to find edematous changes in the papilla in association with diseases of a purely degenerative character with a generally negative inclination. Dr. Kennedy's findings are interesting if based only on clinical evidence. As I understand it, there was no necropsy in these cases. It would be very interesting to know, as a departure from the idols which we hold with regard to degenerative diseases, whether or not there was, in association with those symptoms, a possible neoplasm, or at least something which we believe to be at the basis of most conditions of papilledema, that is, increase of intracranial pressure.

Dr. Peter Bassoe, Chicago: Will Dr. Kennedy state the frequency with which optic neuritis occurs in the early stages of disseminated sclerosis? I am inclined to think that there is a stage of optic neuritis in many of these cases before the familiar pallor of the disks sets in. I recall a case of a young woman with no physical signs of organic disease who suddenly became blind in one eye. There was a distinct hyperemia of the disk, but an able ophthalmologist stated that it was not necessarily beyond physiologic limits. The patient was treated for hysteric blindness and recovered her sight, but a year or so later she developed the ordinary signs of disseminated sclerosis. In another case which I examined only post mortem I found typical lesions of disseminated sclerosis including marked changes in the optic chiasm and optic nerves. There was a history that an ophthalmologist had found a choked disk at a very early stage.

Dr. William W. Graves, St. Louis: Has Dr. Kennedy in his recent study of the literature found many cases of multiple sclerosis in which the optic nerves were involved to the extent of complete atrophy?

Dr. Foster Kennedy, New York: Dr. Moleen suggests that these cases might possibly be neoplastic. This possibility, as indicated in the paper, was considered at the time. In Case 1 the patient went through a series of events which came out extraordinarily quickly, each phenomenon appearing in a way that is not usual in neoplasms. Further, his recovery from all those acute symptoms was almost complete. From being in a state practically dead, he recovered to a very considerable degree of efficiency. The fact that he lived and that his symptoms disappeared, would seem to do away with the possibility of neoplasm. The patient in Case 2 died. The only direct evidence we had that this was not neoplasm of the pons was the fact that the woman had very marked pallor in each disk; a retrobulbar condition which could not be explained by a pontine tumor. In Case 3 the man's symptoms began as a retrobulbar neuritis with scotomas, progressed to bilateral paresthesia in the hands and ended with a well-marked middorsal lesion in the spine. Dr. Bassoe asked concerning the frequency of optic neuritis in sclerosis. At some stage of the process, retrobulbar neurtis has been present in most cases to some degree; but practically every case of advanced disseminated sclerosis shows a varying degree of pallor of the disks. That can only be brought about by degeneration of the macular bundle, and that degeneration is produced by an area of edema in the course of the optic nerve. This is true optic neuritis, and while Uhtoff says that 50 per cent. of the cases of disseminated sclerosis show optic neuritis, I wonder if he does not mean that in half of the cases of disseminated sclerosis is found temporal papillary pallor. Answering Dr. Graves' question as to the production of permanent blindness in disseminated sclerosis, owing to lack of time I was silent on that question. I state in the paper, however, that the first patient's visual progress, his complete blindness and the recovery of his sight afterward to a very considerable degree, is only a quantitative variation of the progress that I am accustomed to look for in severe cases of this disease. I think one may lay it down as a fact that permanent bilateral blindness does not occur as a result of disseminated sclerosis.

DIFFERENTIAL DIAGNOSIS OF NEPHROLITHIASIS AND RENAL TUBERCULOSIS BY ROENTGENOGRAPHY*

MARTIN KROTOSZYNER, M.D.
SAN FRANCISCO

The differential diagnosis of renal tuberculosis and lithiasis is, at present, in the great majority of cases easily accomplished by the trained urologist. The positive evidence obtained from a good roentgenogram establishes at once the diagnosis of calculus, and if in a cachectic individual with suspicious lung-symptoms a protracted and distressing pyuria exists, the diagnosis of renal tuberculosis can be ventured, though tubercle bacilli may not be traceable in the bladder-urine. Thus a correct recognition of both pathologic conditions is, in many instances, feasible by the general practitioner who has taken the pains to familiarize himself with the routine technic of modern urologic diagnostic methods.

Roentgenography is at present justly recognized as the most important means of diagnosing renal calculus, and a satisfactory kidney-plate demonstrating one or more characteristic calculus shadows is now, especially since the more general use of the compression diaphragm, feasible even at the hands of the country practitioner. The risk, besides that, of overlooking or not recognizing concrement shadows can be considerably reduced by the repeated roentgenographic examination of patients with suspicious symptoms of the upper urinary tract.

It is, therefore not surprising that indications for operative procedures in alleged renal lithiasis are, in many quarters, based solely on positive plate-findings. That this must often lead to disappointment and failure is apparent from the fact that, according to a recent review on the value of roentgenography for the diagnosis of urologic lesions, from Immelmann's laboratory[1] thirty-two possibilities of erroneous plate interpretation exist, by which the roentgenographic stone diagnosis is rendered unsafe at the hands of the uncritical and inexperienced observer.

PREVIOUS LITERATURE

While thus the diagnostic importance of roentgenography seems to be over-estimated as regards nephrolithiasis, its value for the recognition of renal tuberculosis, in the absence of clinical or laboratory evidence, is not yet sufficiently appreciated. The literature contains but scant data on the Roentgen diagnosis of tuberculous kidney conditions. Casper[2] and Forsell[3] were able to recognize on the plate tuberculous parenchymatous changes (cavities); a mottled appearance of the kidney shadow is according to Hoffmann[4] and Holland,[5] characteristic of tuberculosis, and irregularities in the density and contours of the kidney shadow are considered by Cole[6] as well as by Proust and Infroid[7] as significant of inflammatory tuberculous foci. An abnormally large kidney shadow may, according to Arthur Hoffmann[8] be characteristic of tuberculosis. More important, because of definitely practical value, is the Roentgen diagnosis of calcified tuberculous foci within the renal shadow. These calcifications, the smallest of which may cast perceptible shadows on the plate, are, according to Burchard,[9] generally located in the lateral portions of the kidney and have only rarely been found in the region of the pelvis or calices. By their location on the plate as well as by their indefinite contours they can, as pointed out by the same author in his exhaustive review on this subject, readily be differentiated from calculus-shadows. Von Lichtenberg and Dietlen[10] consider pyelography of definite value in the local diagnosis of renal tuberculosis as permitting of an exact anatomic orientation on the character and extension of the destructive process of renal parenchyma. An important contribution to the Roentgen diagnosis of renal tuberculosis was lately presented by Söderlund,[11] who reports three cases with characteristic plate-findings, from which alone he was able to make a correct local diagnosis which was afterward verified at the operation.

TUBERCULOUS PUTTY-KIDNEY

A critical review of the literature concerning the plate diagnosis of renal tuberculosis forces on us the conclusion that its real and practical value lies in its differential diagnostic aspect with regard to nephrolithiasis. The importance of a correct differential diagnosis is the more obvious since, not infrequently, the other clinical methods of examination either cannot be applied or fail to yield diagnostic evidence. In these cases plate-findings may be of the utmost diagnostic importance as the only means of disclosing the seat, extension and character of the lesion. As regards the roentgenographic differentiation of tuberculous calcifications from lithiasis, the partial or total so-called putty-kidney (*Kittniere* of the Germans) presents such definite and characteristic plate-features, that on its basis alone a correct diagnosis may be feasible. Through the kindness of Dr. H. M. Sherman of San Francisco, to whom I herewith wish to express my thanks, I am able to present a beautiful roentgenographic specimen of a total putty-kidney, which is the more instructive from a differential-diagnostic standpoint, since it combines the classical features of roentgenographic tuberculosis and lithiasis (Fig. 1).

---

* Read before the Section on Genito-Urinary Diseases at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

1. Rubaschow, S.: Ztschr. f. urolog. Chir., 1913, p. 465.
2. Casper: Wien. med. Wchnschr., 1911, No. 37.
3. Forsell: Fortschr. a. d. Geb. d. Roentgenstrahl, xiii, 51.
4. Hoffmann: Zentralbl. f. Roentgenstrahl., 1911, Nos. 1 and 2.
5. Holland: Arch. Roentgen Ray, January, 1911.
6. Cole: New York Med. Jour., lxxxvii, 774.
7. Proust and Infroid: Paris Société anatomique, 1909.
8. Hoffmann, Arthur: Zentralbl. f. Chir., xxxvii, No. 51.
9. Burchard: Fortschr. a. d. Geb. d. Roentgenstrahl., xx, 281.
10. Von Lichtenberg and Dietlen: Mitt. a. d. Grenzgeb. d. Med. u. Chir., xxiii, No. 11.
11. Söderlund: Fol. Urolog., vii, 75.

The illustration represents the roentgenogram of the right kidney and ureter of a man of 38, who in 1907 came under Dr. Sherman's observation at St. Luke's Hospital, San Francisco, with a history of pyuria and frequent and painful micturition of twenty years' duration. A roentgenogram of the right kidney region demonstrated a huge shadow of unusually intense density and of the size and shape of an enlarged kidney shadow, and a less dense well-defined characteristic calculus shadow impacted in the ureter about 4 cm. below the upper shadow. The right kidney and upper part of the ureter was removed. The wound healed properly and the patient's symptoms gradually abated so that at his discharge from the hospital four months later, he was passing urine but seven or eight times in twenty-four hours. The removed kidney showed marked caseation. The ureteral calculus was 2 cm. long.

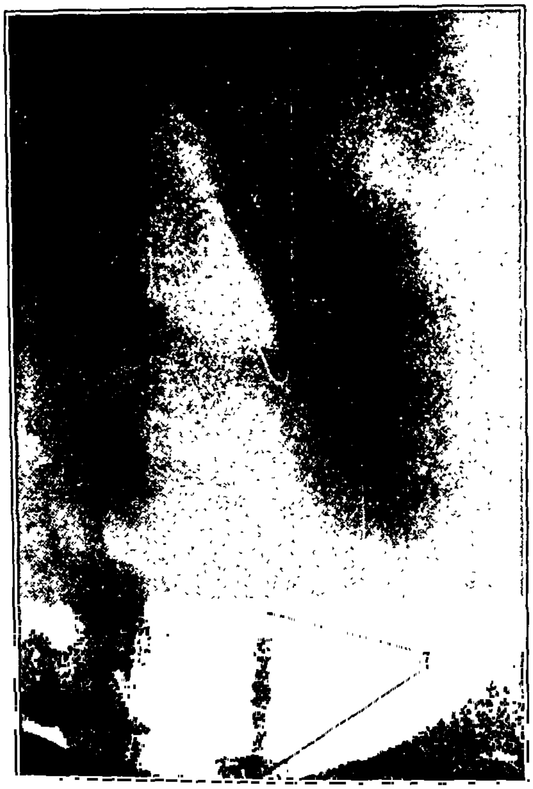


Fig. 1.—Tuberculous putty-kidney. Calculus in ureter at *A*.

I can find the record of only a few similar observations in the literature. The first case of a roentgenographically recognized partial putty-kidney was reported by Forsell and Josefsson[12] in 1908. Two years later Hürter[13] published the first plate of a total putty-kidney, in which the diagnosis of marked tuberculous calcifications of the right kidney and ureter was afterward verified at the post-mortem examination, when the parenchyma of the right kidney was found to be replaced by large cavities filled with cheesy material. Quite recently two cases of total putty-kidney in which the operative indications were based solely on roentgenographic findings afterward proved to be correct at the operation, were reported by Söderlund.[11]

The plate represented by Figure 1 permits of a correct diagnosis through the marked difference in density between the two shadows. The lower oblong, equally dense, and well-defined shadow is, obviously, the photograph of a calculus. The upper denser and, on account of its ragged edges, somewhat irregular shadow, shows an unequal intensity of density suggestive of being cast by disorganized and incrustated material and not by homogeneous concrement substance. The plate is, therefore, a unique specimen of total tuberculous putty-kidney, combining the skiagraphic features of tuberculosis and lithiasis and thus demonstrating, at a glance, the value of roentgenography for the differential diagnosis of both conditions.

SCATTERED CALCIFIED FOCI

While though, in this instance, the diagnosis could be fairly well read from the plate, there are cases recorded in the literature with shadows on the plate resembling concrement-shadows, the differentiation of which from tuberculosis, in the absence of other clinical and bacteriologic evidence, is either very difficult or actually impossible. Occasionally patients enter the hospital with symptoms pointing to lithiasis and demanding immediate action, where in the interpretation of shadows on the kidney-plate the possibility of an existing tuberculosis should always be borne in mind. The following observation will serve to illustrate the point:

In the earlier part of 1908 I was summoned to a man of 41, whom I found in deep uremic coma. Complete anuria; bladder empty; high temperature; rapid and compressible pulse, kidneys not palpable. No data on the previous history could be ascertained. A tentative diagnosis of calculous anuria was made which appeared to be obvious, when two concrement shadows were noticeable on the plate of the left kidney-region (Fig. 2).

The patient was rushed to the hospital where the left kidney, on exposure, was found to be considerably enlarged, containing a pus-cavity at its upper pole, while in the center of the organ two small cavities filled with cheesy material were found. The kidney was, therefore, removed. The patient died the next day without voiding urine or regaining consciousness. The right kidney was found, at the post-mortem examination, to be small, presenting the typical picture of tuberculous atrophy. Renal function, in all probability, had been maintained by the left kidney, the enlargement of which was, obviously, due to compensation.

While the diagnostic error in this case was excusable, on account of the absence of other clinical evidence, a critical perusal of the plate-findings, done with the caution, at present considered indispensable in the interpretation of concrement shadows, might have aroused doubts in the diagnosis. The striking difference in the density, the demarcation and shape of both shadows points to the existence of different shadow-casting substances, which is not characteristic of lithiasis. Particularly the dimness and spotted appearance of the lower shadow with its indefinite edges would to-day, in the hands of the experienced observer, lead to the rejection of the stone diagnosis.

It is very doubtful, however, whether the positive diagnosis of tuberculosis could be made on the basis of these plate findings. The correct interpretation of suggestive concrement shadows is very difficult even in the presence of more or less characteristic features pointing to tuberculosis. When these are absent, though, the resemblance of tuberculous foci to calculi shadows is so striking that a correct plate diagnosis is well-nigh impossible, as in the following observation:

---

[12] Forsell and Josefsson: Hygiea, 1912.
[13] Hürter: Ztschr. f. Roentgenkunde, 1910, No. 11.

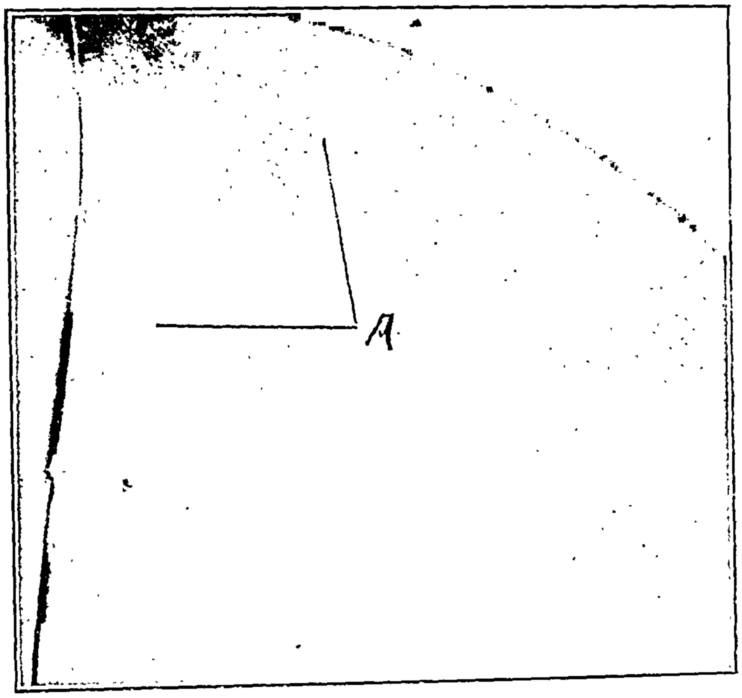


Fig. 2.—Calcified tuberculous foci at *A*.

A stout woman of 44, of excellent physique, had suffered for the last eighteen months from attacks of typical right-sided kidney colic and frequent and painful micturition. Repeated urinalyses demonstrated a moderate amount of pus and blood and no tubercle bacilli. At the hospital the physical examination, including kidney palpation, proved negative. Cystoscopy showed a perfectly normal bladder, except for a moderate cystitis coli, and no abnormality in appearance and spurt of either ureter. The urine of the right side was slightly cloudy and contained, microscopically, pus and blood in moderate amounts, while the secretion of the left kidney was normal in appearance and microscopically. The various functional tests showed good values on both sides, in fact a slight but uniform superiority of function of the suspected right kidney (sugar after phloridzin 1.2 on the right against 1.0 on the left side, etc.). No tubercle bacilli in right renal secretion. Repeated roentgenographic exposures including a pyelogram (Fig. 3) showed on the right side two small round and well-defined shadows, which were interpreted as calculus shadows.

The exposed right kidney presented, near its lower pole, two small cavities filled with a gritty, caseous material. The removed kidney showed, in the region of its pelvis, granulation and cicatricial tissue in which tubercle bacilli with giant-cells were present (chronic tuberculosis).

The diagnostic difficulties encountered in this case were unusual. Strong arguments against tuberculosis were the negative cystoscopic findings and, particularly, the functional integrity of the suspected kidney. According to Wildholz,[14] probably the best authority on tuberculosis of the genito-urinary tract to-day, the most unimpeachable evidence of the existence of renal tuberculosis is presented by a perceptible deterioration of function of the suspected organ. Thus. in the absence of reliable clinical evidence, the plate-findings, pointing to lithiasis, became of decisive diagnostic importance. The only clue to the diagnostic problem lay in the correct interpretation of the pyelographic plate (Fig. 3), disclosing hazy and irregular contours of all calices, which findings in the experience of von Lichtenberg and Dietlen[10] are characteristic of renal tuberculosis.

COMMENT ON DIFFERENTIAL DIAGNOSIS

From our present meager knowledge of the differential diagnostic aspect of plate shadows it appears that, in a great many instances, a correct roentgenographic differentiation between renal tuberculosis and lithiasis is not feasible. This is particularly true of one or more small and circumscribed shadows cast by scattered foci of tuberculous caseation. Such shadows look so much like stone-shadows, as for instance, in the case reported by Menhauser from Israel's clinic,[15] that a correct local diagnosis, on the sole basis of plate-findings, is utterly impossible. Only the tuberculous putty-kidney presents sufficiently characteristic roentgenographic features as to permit of a correct local diagnosis.

I am convinced from my own observation that pyelography may occasionally be of definite differential diagnostic value. This method, though, is too risky a procedure in renal tuberculosis to become a routine measure in doubtful cases.

Another source of error may arise from the possibility that a shadow seen on the renal plate is cast by an object outside the kidney. The shadow on the plate presented in Figure 4 is cast by a tuberculous lymph-gland removed from a patient who had suffered from typical attacks of left-sided stone-colic.

While, thus, the differential diagnosis of nephrolithiasis and renal tuberculosis by roentgenography alone is in most instances difficult and often impossible, it is, nevertheless, capable of yielding better results with growing experience in the interpretation of suspicious shadows. It is obviously true that in order to diagnose a certain lesion one has to consider the probability of its existence. If, therefore, in the presence of one or more alleged concrement shadows on the plate, the probability of tuberculosis will always

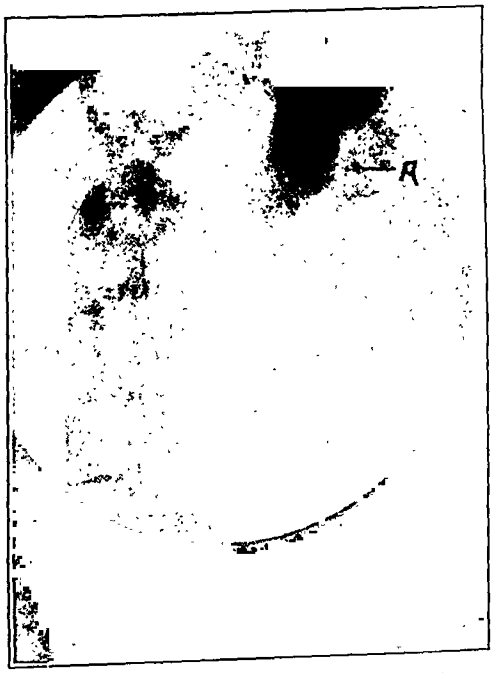


Fig. 3.—Pyelogram of tuberculous kidney. Note irregular contour of calices. Shadow of tuberculous caseation at *A*.

---

[14] Wildholz: Ztschr. f. urolog. Chir., i, 552.

[15] Menhauser: Fol. urolog. iv, No. 5; see Tafel vi, Fig. 4.

be borne in mind, the occurrence of diagnostic errors will in time be materially reduced.

CONCLUSIONS

1. Roentgenography may be of definite value in the local diagnosis of renal tuberculosis when other clinical methods fail.

2. The differential diagnosis of nephrolithiasis and nephrophthisis, by roentgenography alone is feasible in the presence of marked tuberculous renal caseation (tuberculous putty-kidney).

3. It is difficult or perhaps impossible in the presence of one or more concrement shadows cast by calcified tuberculous foci within the renal parenchyma.

4. A careful and judicious interpretation of concrement shadows is imperative in order to avoid diagnostic errors of serious consequence.

999 Sutter Street.

ABSTRACT OF DISCUSSION

Dr. W. M. Spitzer, Denver: None of us relies implicitly on the roentgenograms, but the more we can develop our technic and the more we can rely on the roentgenograms, the more keen our diagnosis will be. This, of course, is an argument for pyelography. We will eventually, I am sure, when sufficient work has been done, be able to diagnose from the shape of the calices and the kidney pelvis, as well as from the size of the kidney pelvis, various lesions. As to the differential diagnosis between a stone and a caseous mass in the kidney, I do not know that that can always be made. I do not think that the density counts very much. There are dense stones that do not show at all on the roentgenogram, whereas, on the other hand, there are masses of caseous material which show quite distinctly. Still, the closer attention we pay to the study of our roentgenograms, the greater aid we are going to have in making our diagnoses.

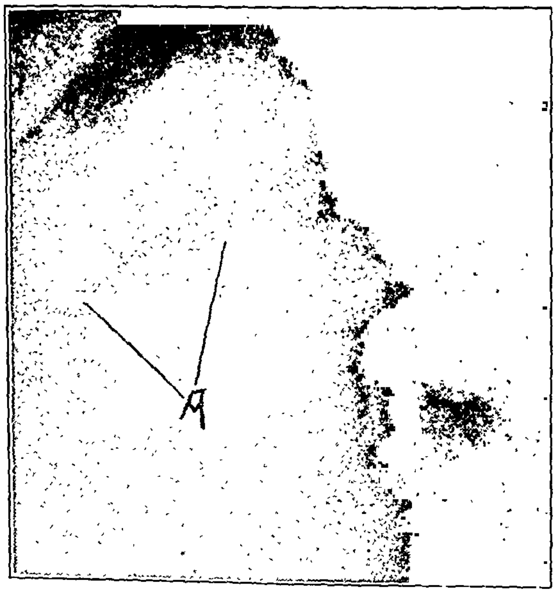


Fig. 4.—Tuberculous lymph-glands at *A*.

Dr. Martin Krotoszyner, San Francisco: Though the differential diagnosis in this instance was materially aided by pyelography, this method should, if possible, not be applied in suspected renal tuberculosis, where it is considered by good authority to be particularly dangerous.

Destruction of Mosquito Larvae by Fish.—In the Gambia the destruction of mosquito larvae by fish is systematically carried out. A constant reserve of fish is maintained at the sea end of one of the drains even in dry season, and as occasion demands some are transferred to other drains, private wells, etc. More and more private individuals are having their wells stocked with fish. This it proves a more efficient prophylaxis than well-covers, which, however thorough in themselves, must of necessity be frequently removed. Fish from the sea introduced into comparatively fresh water are some time in adapting themselves to it, but after a day or two become brisk again and destroy larvae with avidity. Whether it is this change that temporarily upsets them, or the pangs of hunger eventually asserting themselves, though some fish would not touch larvae on their first day in captivity, all fish eat them greedily from the second day onward.

THE OPERATIVE TREATMENT OF TUMORS OF THE TESTICLE

WITH THE REPORT OF THIRTY CASES TREATED BY ORCHIDECTOMY*

FRANK HINMAN, M.D.
Assistant Resident Surgeon, Johns Hopkins Hospital
BALTIMORE

A well-recognized principle in the surgical treatment of malignancy is to excise widely the local growth, to make a clean dissection of all the lymphatics which drain the area and to remove the primary chain of glands into which these lymphatic vessels empty. The mortality-rate from cancer has progressively decreased with the adoption of these more and more radical methods of attack. Simple castration has been long and almost universally the treatment for malignant disease of the testes, and the majority of these patients have been seen to die of metastases which primarily involve the preaortic lymph-nodes into which the lymph-channels of the testicle drain. The radical principle which is theoretically so rational has not been generally applied to the surgery of the testicle for obvious anatomic and other reasons. Surgeons have been restrained both by the great operative difficulties and by a general belief in the futility of such an extensive procedure.

The purpose of this study is to determine from a review of the literature and an analysis of the cases of the Johns Hopkins Hospital the true value of castration and to compare this with the results that have followed the use of the radical operation in the forty-odd cases reported in the literature. Such an analysis has never been made and should give an excellent opportunity of determining the significance of preoperative duration and rapidity of growth of the tumor to the onset of glandular metastases and the significance of such metastases with respect to a choice between the two methods of operative treatment. The particular object is to find out if the radical operation is ever justified, and if so, under what conditions.

HISTORICAL

The study of testicular tumors has been chiefly confined in the past to pathologic considerations. From this point of view these tumors are of unusual interest as they show cells and tissues of almost every conceivable variety. The subject was in hopeless riot until the appearance in 1906 of the masterly pathologic and clinical study of 100 cases by Chevassu[1] which simplified the classification to practically only two types of tumor of almost equal frequency, namely, the round-cell carcinomas and nine are teratomas. Of the former group two patients are alive, twelve and thirteen years, and none of the seven patients that are dead lived over two years. Of the latter group all are dead except one patient, who is now alive for only sixteen months. One patient lived for three years, another for nine years and seven months. This case is most unusual with a history of injury forty years before the onset of tumor which preceded orchidectomy by three years. A letter from the patient six years later (1906) stated that he was well, and a letter from his wife this summer states that he died of "abdominal cancer," March 3, 1910, nine years and seven months after castration. These facts indicate that the mixed type of tumors are more malignant, though possibly of a slower form of growth, than the pure-cell carcinomas, although, since all tumors are teratomatous in origin, such a differentiation is more or less arbitrary.

---

* Read before the Section on Genito-Urinary Diseases at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

[1] Chevassu, Maurice: Tumeurs du testicule, thesis, Paris, 1906.

The result in the four cases in which the material was not available for study but in which a previous diagnosis of sarcoma had been made gives one living now almost twelve years, and three deaths, one, two and eight years, respectively, after castration. The latter case is another remarkable instance of the long duration of life that is possible after castration for teratoma testes with ultimate death from cancer metastases. It is that of a cryptorchid who three years following double castration, at which time both testicles were found to be the seat of "sarcoma," began to have abdominal symptoms, but lumbar glands were not palpable until after six years, and death did not occur until eight years after the operation. Bloodgood places the time limit for cure in cancer of the breast at eight years, and it would seem that the limit of four years as placed by Chevassu, while only exceptionally exceeded, is not an absolutely safe period in cancer of the testes. One of Chevassu's own patients died a full four years after operation; but, as Andrews formulates it:

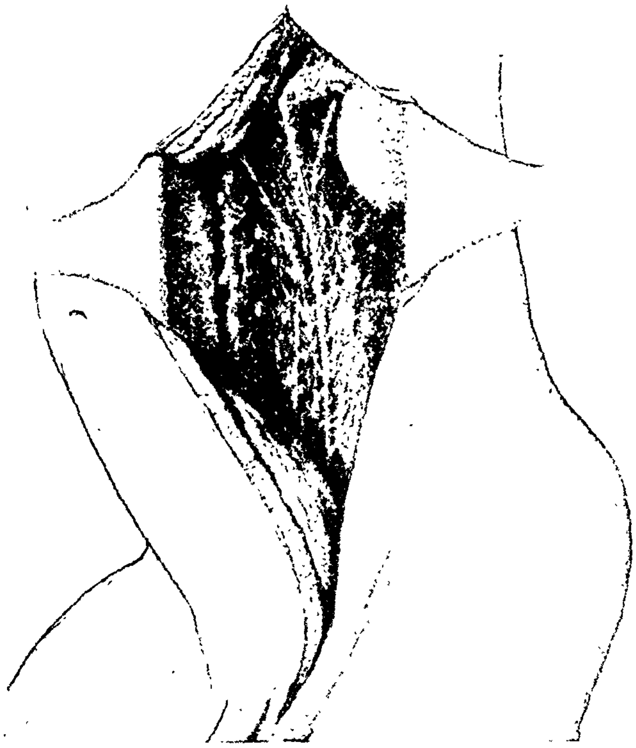


Fig. 3.—Peritoneum stripped back showing lymph area to be removed.

> The risk of recurrence in malignant growths increases as the square of the time of growth; or, conversely, the risk of recurrence diminishes in the ratio of the square root of the time after incidence.

With one exception in which death resulted a few days after operation from pulmonary embolus, all of the patients, so far as can be determined, died of cancer. Excluding this one case of embolus and the four cases in which metastases were already present at the time of operation, the series shows a cure from castration in only 15 per cent. of the cases, a high mortality-rate of 85 per cent.

ANALYSIS OF CASES TREATED BY RADICAL OPERATION

The records of forty-four attempts radically to remove the primary preaortic lymph area in treating testicular tumors have been collected from the literature. Gregoire furnishes information regarding two additional and unpublished cases. This material offers an excellent opportunity because of the exposure at operation to determine the relation of the duration, size, rapidity of growth and the character of the tumor to the onset of the glandular metastases and their early location. Inasmuch as thirty-two of the operations were performed before 1911, there has been sufficient time to allow of a comparison of the results with those following castration. Several French theses have been written on the subject (Calin,[12] Beckerich,[13] Moscarenhas[14]), but in none of these are the cases analyzed to show the operative or ultimate mortality, the relative number of cases which had at the time of the operation early metastases and the proportion of these in which these metastases, although not possible of recognition clinically, were so extensive as to be inoperable.

The technic of the operation from a study of the descriptions of the various operators and from personal dissections from which the accompanying drawings have been made is briefly as follows: The operation is usually performed in two stages, inguinal and abdominal. The first stage is that of ordinary castration and it is extremely important that the testicle be carefully examined at this time and the diagnosis definitely confirmed before proceeding to the extensive abdominal part of the operation. The fact that over 7 per cent. of the few cases so far subjected to the radical method of treatment were found on subsequent examination of the specimens to have had a syphilitic orchitis shows the importance of this preliminary study.

For the second stage of the operation the position of the patient is of considerable importance. It should be a bent dorsolateral one with the patient turned partly on his back and resting on a pad under the costal margin with shoulder and hip on the table. This raises the spine to conform to the line of the incision and allows a good exposure of the deep abdominal vessels (Fig. 2). The skin incision is extended from the upper end of the inguinal cut parallel to Poupart's ligament, curving upward in the axillary line at about 4 cm. below the anterior superior spine of the ilium to end at the costal margin. In fat, thick-bellied men, the upper end of the incision may be extended along the rib margin either anteriorly (Gregoire, Fredet[15]) or posteriorly (Cuneo). The muscle-fibers and fascia are divided in a line with the skin incision down to the peritoneum, which is gently stripped back so as to expose the lower pole of the kidney and the psoas muscle. A choice is given the operator between starting above at the renal pedicle and working down or beginning below in the inguinal ring and stripping the cord and vessels up toward the lumbar region. The former method of attack appears more rational, and in the dissections by traction on the spermatic vessels at the external ring was easily accomplished. Figure 3 indicates the exposure of the lumbar field and Figure 4 the appearance after the lumbar and iliac fossae have been stripped. In cleaning the anterior surface of the aorta the inferior mesenteric artery must be protected. The spermatic vessels and the ureter usually remain attached to the peritoneum when it is stripped up in the iliac fossa, and this region should be carefully cleaned as metastases often occur where the ureter crosses the iliac vessels. The dissection should also be carried up so as to include the region about the bifurcation of the aorta. The vas deferens is readily located and divided as it leaves the internal ring. The clean removal of the vascular and lymphatic layer as outlined is far superior to the palpation and individual removal of single glands, as is sometimes described. The operation for right-sided involvement offers greater difficulties in that the area to be cleaned covers the vena cava. Good and sufficient drainage should be established owing to the large lymph area removed.

---

[12] Calin, Paul: Du Traitement chirurgical du cancer du testicule, (extirpation des ganglions ilio-lombaires), Lyons, 1911, 74, p. 8.

[13] Beckerich, Louis-Achille: De l'ablation des ganglions lombo-aortiques comme complément a la castration pour néoplasme testiculaire, Nancy, L. Bertrand, 1911.

[14] Moscarenhas, C. O.: Contribution a l'étude du traitement du cancer du testicule, Paris, 1912.

[15] Fredet, Pierre: Obs. in Bull. soc. chir., 1910, 245, and Rev. de Chir., 1910, xli, 661.

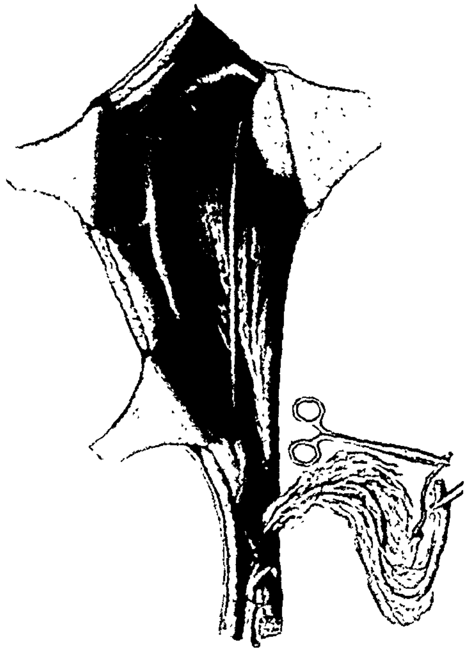


Fig. 4.—Lumbar and iliac fossae stripped clean of glands and fascia with the spermatic vessels down to inguinal ring. Vas deferens entering pelvis at point where it is divided.

From the accounts of those who have performed the operation it presents neither the difficulties nor gravity that would be expected. The patients apparently stand the operation well and show no evidence of shock, and the convalescence is relatively short. The long incision is objectionable because of the danger of hernia and of the division of numerous nerves. The tenth, eleventh and twelfth dorsal nerves are always cut, and usually the lower branch of the genitocrural. Partial paralysis of the abdominal muscles results and difficulty with the bowels is encountered during convalescence. Chevassu has shown by faradic and galvanic tests that this paralysis is only temporary. There have been no fatalities from postoperative hemorrhage or other complication as a result of injury to the large abdominal vessels. Five of the patients died of postoperative complications, three of pneumonia and two of peritonitis, an operative mortality of 11 per cent., which, considering the newness and nature of the operation, is surprisingly low.

With the exception of two cases (André,[16] Georgesco and Savesco,[17] Case 2) there was no clinical evidence of lumbar metastases before operation. Three of the cases (Cuneo, Case 2, Marion, Mercadé) were mistakes in diagnosis, the testicles in each being found on subsequent examination to be the seat of a syphilitic orchitis. Of the forty-two remaining patients, twenty are living, nine for over two years; four for over four years, the longest for four years and ten months, the shortest for one month. The average time since operation on the twenty patients who are reported alive is one year and eight months. Sixteen, or 41 per cent., have died of cancer, all within one year except two, one of whom (Gregoire, Case 1) died thirty-one months and the other (Chevassu, Case 2) four years after operation.

The duration of the disease before operation varied between two months and twelve years, with an average of fourteen months. Twenty-one of the cases had a duration under one year, and twelve of these under six months. Only three cases had a duration of over three years. While lumbar glands were palpable in only two cases before operation, twenty-two, or over 50 per cent., of the cases showed cancer invasion of the lumbar nodes that were removed at operation, and in eleven of these the involvement of the gland area was so extensive as to be inoperable. In eight of the cases in which numerous lumbar glands were removed, these on subsequent microscopic examination in no case showed cancer invasion. In three cases no lumbar glands at all were found at operation. The twenty-two cases with malignant involvement of the lumbar nodes removed at operation had a preoperative duration of from two months to twelve years or, omitting the case with a duration of twelve years, which is the longest in the series and questionable, an average of fifteen months. On the other hand, the eleven cases in which no lumbar involvement was found had a preoperative duration of from three months to fifteen months, with an average of eight months. This indicates that the preoperative duration has considerable significance with respect to the onset of glandular metastases. The significance, however, cannot be definitely determined, as many cases of short duration are seen to have extensive metastases, whereas cases of an apparently long existence may have no metastases. The chances, nevertheless, of metastases not having occurred, are greatly in favor of a case with comparatively short duration. All of the eleven patients in whom the glandular involvement was so extensive as to render its complete removal impossible are dead, except two who had been observed for only one month at the last report. Of the other fourteen patients with glandular involvement but in which the gland area supposedly was completely removed at operation, seven are living, one died of pneumonia seven days after operation, and six died of cancer recurrence.

Of the eight patients with clean glandular removal but in which no involvement could be found, five are living, and three died of cancer. Two of the three patients in whom no glands at all were found are dead. Of the six cases in which no mention is made of glands, two patients are dead, one and twelve months, respectively, after operation; three are living, one, twelve and forty-eight months, respectively, and the result in one, presumably alive, is not mentioned.

---

[16] André: Cancer du testicule avec extirpation des ganglions lombo-aortique, Revue méd. de l'est., 1912, xliv, 420.

[17] Georgesco, G., and Savesco, V.: Etude anatomique et chirurgicale sur trois cas de cancer du testicule, Jour. de Chir. de Bucarest, April, 1914, iv-vi, 226.

Obviously all cures in those patients who had cancer involvement of the lumbar glands that were removed at operation will be directly due to the radical procedure, and just as obviously the radical procedure will be able to cure in only those early cases in which the invasion has not spread beyond the primary lymph zone. Simple castration will be of no benefit in either case, and will cure in only those very early cases in which the disease is confined to the testicle proper. Of the six patients living who had glandular metastases removed, one, in whom two of the glands removed at operation showed marked invasion, is now alive and well almost five years since the removal of these glands, three other patients are alive and with no evidence of recurrence for almost three years from the time malignant lumbar glands were removed, and the two other patients were alive after operation eight and one months, respectively, at the time of the last report.

SUMMARY AND CONCLUSIONS

1. Orchidectomy will cure from 15 to 20 per cent. of teratoma testes. Obviously a cure is possible only when the testicle is removed before the onset of glandular or other metastases.

2. A cure cannot be assured until nine years after operation, although the danger of recurrence after four years is very small (only three cases reported) and progressively diminishes.

3. Cancer of the testicle metastasizes in practically every case first and primarily to a limited zone of lumbar lymph-nodes which lie on the aorta for the left testicle and on the vena cava for the right, between the bifurcation of these vessels and the renal pedicle. Communication between these two groups and to deeper or more distant glands occurs only secondarily.

4. Involvement of these primary lymph-nodes may occur early or late, and the preoperative duration of the tumor in the testicle, its rapidity of growth or its size give no definite clinical indication of the onset or extent of such metastases, but the probabilities increase the longer the duration and the more rapid the growth.

5. Pathologic differentiation of tumors of the testes into embryonal carcinomas and mixed-cell types is more or less arbitrary as both are teratomatous in origin; but the former appears to be definitely less likely to metastasize, although more rapid in its growth. There are fewer cures among the cases of teratoma, although these give the longest duration before death.

6. The primary lymph-nodes are a very imperfect guard against secondary invasion, and metastases to other gland areas by way of efferent lymph-channels or by blood-vessels to thoracic or abdominal organs may occur early. Surgical treatment is of no avail after these secondary metastases have occurred. The only hope, therefore, in a radical operation is the removal of the testicle with its primary lymph area before the disease has spread beyond this zone.

7. The experience of various surgeons in a total of forty-six cases has demonstrated in suitable cases the feasibility and technical ease of the radical operation with a combined surgical mortality in all cases of only 11 per cent.

8. Radical operation should never be undertaken when lumbar metastases are recognizable clinically, and is applicable only in the fairly early cases in which the disease is apparently limited. Owing to the deep position of the glands, these cases cannot always be differentiated before operation, so that every case, in which clinically there is no invasion, is suitable for radical treatment. The operation should never be performed until after the diagnosis is confirmed.

9. Sufficient time has not elapsed and the cases are so scattered that it has not been possible to get the ultimate result in all of the patients treated radically. Forty-six per cent. are alive, one for five years; one for four years; five for almost three years; two for over two years and eleven for one year or less. There is a probable cure in at least four cases which had lumbar glands invaded with cancer at the time of the operation. Simple castration could not have benefited any of these cases, and their cure is directly attributable to the early and clean removal of the affected lymph area.

10. In conclusion, therefore, it may be stated that the early removal of the testicle with its primary lymph zone is the rational method of surgical treatment of teratoma testes, but the extensive nature of the operation and the fact that almost one-third of the cases thus treated were found to be inoperable warrants a very careful selection of suitable cases.

I wish to acknowledge thanks to Dr. W. S. Halstead for the privilege of using the material of his surgical clinic, to Dr. J. C. Bloodgood for the valuable material of the surgical pathologic laboratory, and to Drs. Gregoire, Pringle, Chevassu, Marion and others for data in regard to cases operated on, and particularly to Dr. Hugh H. Young for his generous kindness in furnishing financial and advisory assistance and for the use of the material of the genito-urinary clinic.

ABSTRACT OF DISCUSSION

Dr. Hugh Young, Baltimore: Dr. Hinman has thoroughly studied all our pathologic records, and I think has made all of us realize that we shall have to change our text-books and do a far more radical procedure than in the past. On account of such work as Dr. Hinman's we are compelled to note a series of bad results that we did not realize were occurring.

Dr. Frederick W. Robbins, Detroit: I wondered while I listened to Dr. Hinman's paper if he had entirely forgotten the work of Coley in connection with his serum in these cases. About five or six years ago I reported a case that shows, as I believe, the result of the use of the double injection of the erysipelas and prodigiosus bacilli. A man had a very rapidly growing tumor of the testicle, probably a teratoma, although at the time I thought it was a sarcoma, which I removed without any very extensive dissection. The tumor was about as large as my fist. That the tumor was malignant I think is proved from the fact that within ten days after it was removed another growth was formed as large as my fist. I then dissected out, very carefully, the contents of the scrotum, and without opening the internal abdominal ring went up as high as I could to get everything out, and the wound looked perfectly clean. Inside of ten days the growth was again forming so that you could see it increase in size every day. I began the injection of the double bacillus. Within two days the growth had stopped and then gradually disappeared. He was under treatment about three weeks, getting a reaction at every injection. I began with a small dose and increased the dosage. The first injection caused elevation of temperature to about 103, as I remember it, but gradually it required a larger and larger injection to get a reaction, until in about two weeks the maximum dose was given. The growth entirely disappeared. The other day I heard from him, and he is reported to be perfectly well. We should not forget that there are such cases as I have had and as Coley has reported, which are wonderfully helped and probably cured by the double bacillus injection.

Dr. Edward L. Keyes, Jr., New York: In two cases I have endeavored to follow out practically the technic suggested by Dr. Hinman of clearing up the space between the ureter and the aorta as far as the kidney, and in both instances I have found the veins implicated in the disease, extending to and beyond the kidney. In one case there was a large mass of secondary glandular involvement even above the kidney, and in the other there was simply a venous involvement up to the kidney. Several other patients I have seen die from metastasis extending so rapidly after the disease once got started and of such wide distribution that it seemed to me that, taken in connection with the known fact that the veins of the pelvis and abdomen are frequently involved in the growth, the metastases occur by the vascular instead of the lymphatic route in the large majority of cases. If that is the case, I question whether an extensive dissection is going to help us revise our mortality statistics. I fancy the real thing is to get at the cases early, before vascular metastases have occurred and not to pinch the vessels when you are examining them.

Dr. M. Krotoszyner, San Francisco: In connection with Dr. Keyes' remarks, I believe that the salvation of our patients does not lie so much in the radical operation as in the early diagnosis. I do not think there is any condition in the genito-urinary tract so difficult to diagnose as enlargements of the scrotum involving the testicle. It is in these cases that the Wassermann reaction has complicated the diagnostic difficulties. Any physician who has seen many of those doubtful tumors will admit that three large conditions loom up right from the start—tuberculosis, tumor and syphilis—and he will not be willing to put the patient on the operating-table before he has at least satisfied himself that a diagnosis of syphilis can be excluded. I have seen cases in which the Wassermann was slightly or even strongly positive and in which afterwards the diagnosis of primary carcinoma of the testicle was verified pathologically. What are we going to do? In one case three months had been lost by this means, not only in my hands, but in the hands of my predecessors. I think a means ought to be established by which we are enabled as early as possible to make the diagnosis. I think then the result of our operative procedures will be better.

Dr. Frank Hinman, Baltimore: With regard to Dr. Keyes' statement concerning vascular and glandular involvement, forty-six of these cases, I think, gave a very clear indication as to the first metastasis of these tumors. In twenty-two cases the lymphatic glands were first involved at the time of operation. In eleven of these twenty-two cases the disease was so extensive as to render them inoperable. This fact, however, I think does not detract from the object of the radical operation, because four of these patients were apparently cured. An early diagnosis, of course, is the all-important thing in the treatment, but it has been shown that castration will only cure from 20 to 50 per cent. of these cases, and the radical operation, from a surgical point of view, is perfectly feasible and technically not difficult. So that in every case the lymphatic region should be explored. There certainly will be a small proportion of patients who will be cured by the radical operation who otherwise would certainly die.

"Idiopathic" Insomnia.—Insomnia is a symptom always; it is never a disease. In many text-books there is a reference to "idiopathic insomnia." That is the insomnia described by the ignorant man. We are all ignorant on this subject, and the best thing is to admit our ignorance, rather than trying to satisfy our consciences by describing it as idiopathic, or putting a long title to it or classifying it, and concluding that all is well.—H. Crichton Miller, *Medical Press and Circular.*

DIVERTICULA OF THE URINARY BLADDER

WITH REPORT OF CASES *

WILLIAM E. LOWER, M.D.
CLEVELAND

The increasing literature regarding diverticula of the urinary bladder and the frequent reports of cases which are now appearing indicate, in my opinion, not that this condition is occurring more frequently than formerly, but that it is now being more accurately diagnosed and that its treatment is now yielding more satisfactory results. Very complete reviews of the literature on this subject have been made by Fischer[1] and by Lerche,[2] who show that opinions regarding the exact etiology of diverticula still vary. Some writers believe that diverticula are always congenital while others contend that they are acquired, the point of differentiation being the presence or absence of muscular fibers in the walls of the sac forming the diverticulum. If muscular fibers be present it still is considered by many that the diverticulum is of congenital origin. If, however, the sac be formed only of mucous membrane, that is considered evidence that the diverticulum is acquired. It has been shown recently, however, that in practically all cases some muscular fibers are found in the sac wall, though they often are very much attenuated.

It seems to me, however, from the clinical aspects of the cases that have come under my observation and are here reported, that these diverticula were acquired, and the argument, which also applies for most diverticula, is: 1. They scarcely ever are found in the very young, but for the most part in persons past middle life, a time at which obstruction to urinary outlet most frequently occurs. Necropsies on children do not show this condition, or at least its presence is not mentioned in most post-mortem records. Such anomalies as hour-glass or double bladder which are occasionally reported at post-mortem findings in children are generally associated with double urethras or multiple ureters and other abnormalities and should not be considered identical with true clinical diverticula. 2. They very seldom occur in women, the ratio being about one to ten. 3. In most cases the bladder wall is much thickened, a condition present in most cases indicating obstruction to the urinary outlet, which produces more or less retention. In the one case of a woman in my own series a urethral caruncle was present which caused her so much pain that she refrained from voiding as much as possible and never completely emptied her bladder.

Even Englisch, as quoted by Fischer, believes that the so-called congenital diverticula are "based on the presence of some obstacle to the outflow of urine, in consequence of which the weak points of the muscular arrangement of the bladder give way. These obstacles may be produced by inflammatory conditions of the bladder or urethra during intra-uterine life but which have healed up, leaving no vestiges after birth."

That there probably is some congenital condition of the bladder wall which under certain conditions, such, for example, as obstruction and overdistention for a patients in whom no glands at all were found are dead. Of the six cases in which no mention is made of glands, two patients are dead, one and twelve months, respectively, after operation; three are living, one, twelve and forty-eight months, respectively, and the result in one, presumably alive, is not mentioned.

---

* Read before the Section on Genito-Urinary Diseases at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

[1] Fischer: Congenital Diverticula of the Bladder, Surg., Gynec. and Obst., 1910, x, 156.

[2] Lerche: The Surgical Treatment of Diverticula of Bladder, with Report of a Case and a New Device for Operation, Ann. Surg., 1912, lv, 285.

Obviously all cures in those patients who had cancer involvement of the lumbar glands that were removed at operation will be directly due to the radical procedure, and just as obviously the radical procedure will be able to cure in only those early cases in which the invasion has not spread beyond the primary lymph zone. Simple castration will be of no benefit in either case, and will cure in only those very early cases in which the disease is confined to the testicle proper. Of the six patients living who had glandular metastases removed, one, in whom two of the glands removed at operation showed marked invasion, is now alive and well almost five years since the removal of these glands, three other patients are alive and with no evidence of recurrence for almost three years from the time malignant lumbar glands were removed, and the two other patients were alive after operation eight and one months, respectively, at the time of the last report.

SUMMARY AND CONCLUSIONS

1. Orchidectomy will cure from 15 to 20 per cent. of teratoma testes. Obviously a cure is possible only when the testicle is removed before the onset of glandular or other metastases.

2. A cure cannot be assured until nine years after operation, although the danger of recurrence after four years is very small (only three cases reported) and progressively diminishes.

3. Cancer of the testicle metastasizes in practically every case first and primarily to a limited zone of lumbar lymph-nodes which lie on the aorta for the left testicle and on the vena cava for the right, between the bifurcation of these vessels and the renal pedicle. Communication between these two groups and to deeper or more distant glands occurs only secondarily.

4. Involvement of these primary lymph-nodes may occur early or late, and the preoperative duration of the tumor in the testicle, its rapidity of growth or its size give no definite clinical indication of the onset or extent of such metastases, but the probabilities increase the longer the duration and the more rapid the growth.

5. Pathologic differentiation of tumors of the testes into embryonal carcinomas and mixed-cell types is more or less arbitrary as both are teratomatous in origin; but the former appears to be definitely less likely to metastasize, although more rapid in its growth. There are fewer cures among the cases of teratoma, although these give the longest duration before death.

6. The primary lymph-nodes are a very imperfect guard against secondary invasion, and metastases to other gland areas by way of efferent lymph-channels or by blood-vessels to thoracic or abdominal organs may occur early. Surgical treatment is of no avail after these secondary metastases have occurred. The only hope, therefore, in a radical operation is the removal of the testicle with its primary lymph area before the disease has spread beyond this zone.

7. The experience of various surgeons in a total of forty-six cases has demonstrated in suitable cases the feasibility and technical ease of the radical operation with a combined surgical mortality in all cases of only 11 per cent.

8. Radical operation should never be undertaken when lumbar metastases are recognizable clinically, and is applicable only in the fairly early cases in which the disease is apparently limited. Owing to the deep position of the glands, these cases cannot always be differentiated before operation, so that every case, in which clinically there is no invasion, is suitable for radical treatment. The operation should never be performed until after the diagnosis is confirmed.

9. Sufficient time has not elapsed and the cases are so scattered that it has not been possible to get the ultimate result in all of the patients treated radically. Forty-six per cent. are alive, one for five years; one for four years; five for almost three years; two for over two years and eleven for one year or less. There is a probable cure in at least four cases which had lumbar glands invaded with cancer at the time of the operation. Simple castration could not have benefited any of these cases, and their cure is directly attributable to the early and clean removal of the affected lymph area.

10. In conclusion, therefore, it may be stated that the early removal of the testicle with its primary lymph zone is the rational method of surgical treatment of teratoma testes, but the extensive nature of the operation and the fact that almost one-third of the cases thus treated were found to be inoperable warrants a very careful selection of suitable cases.

I wish to acknowledge thanks to Dr. W. S. Halstead for the privilege of using the material of his surgical clinic, to Dr. J. C. Bloodgood for the valuable material of the surgical pathologic laboratory, and to Drs. Gregoire, Pringle, Chevassu, Marion and others for data in regard to cases operated on, and particularly to Dr. Hugh H. Young for his generous kindness in furnishing financial and advisory assistance and for the use of the material of the genito-urinary clinic.

ABSTRACT OF DISCUSSION

Dr. Hugh Young, Baltimore: Dr. Hinman has thoroughly studied all our pathologic records, and I think has made all of us realize that we shall have to change our text-books and do a far more radical procedure than in the past. On account of such work as Dr. Hinman's we are compelled to note a series of bad results that we did not realize were occurring.

Dr. Frederick W. Robbins, Detroit: I wondered while I listened to Dr. Hinman's paper if he had entirely forgotten the work of Coley in connection with his serum in these cases. About five or six years ago I reported a case that shows, as I believe, the result of the use of the double injection of the erysipelas and prodigiosus bacilli. A man had a very rapidly growing tumor of the testicle, probably a teratoma, although at the time I thought it was a sarcoma, which I removed without any very extensive dissection. The tumor was about as large as my fist. That the tumor was malignant I think is proved from the fact that within ten days after it was removed another growth was formed as large as my fist. I then dissected out, very carefully, the contents of the scrotum, and without opening the internal abdominal ring went up as high as I could to get everything out, and the wound looked perfectly clean. Inside of ten days the growth was again forming so that you could see it increase in size every day. I began the injection of the double bacillus. Within two days the growth had stopped and then gradually disappeared. He was under treatment about three weeks, getting a reaction at every injection. I began with a small dose and increased the dosage. The first injection caused elevation of temperature to about 103, as I remember it, but gradually it required a larger and larger injection to get a reaction, until in about two weeks the maximum removed after they had been packed tightly with gauze, while the fourth was removed by bringing the sac up through the bladder. In these three cases the convalescence was uninterrupted and in two there have been splendid functional results, but in the third there is still some residual urine which I believe to be due to a prostate which I did not completely remove at the time, although I did remove a projecting lobe which seemed to obstruct the urethra. In three out of five cases of men in each of which I particularly noted the urethral outlet there was distinct evidence of obstruction by small projecting lobes of the prostate, and in the other two the lateral lobes of the prostates were enlarged.

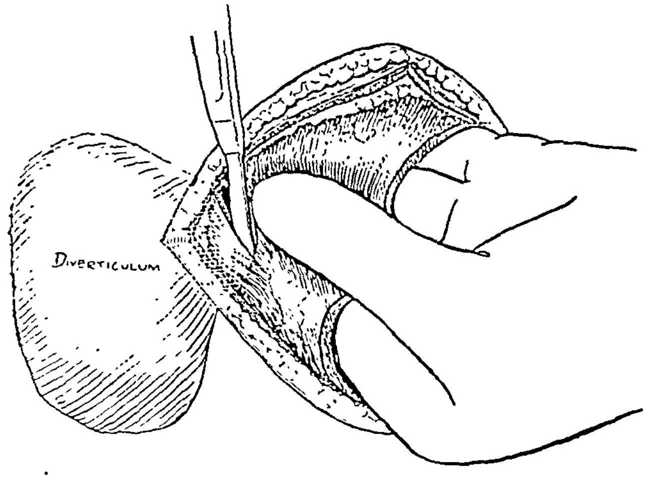


Fig. 3.—Division of the attachment of the diverticulum.

I have already referred to the case of the woman whose urethra was partially obstructed by a caruncle. In the late cases that have come under my observation I was able to determine the size and location of the diverticula by the use of collargol and roentgenoscopy. In three cases I was able to get postoperative pictures. These show the entire absence of the diverticula which are visible in the preoperative pictures.

By using collargol and the Roentgen ray for diagnosis, and by comparing the preoperative and postoperative pictures, we are able to draw very definite conclusions regarding the value of excision in these cases.

In those cases in which excision seems to be impossible, the method which has recently been suggested and so practically applied by Squier[4] is well worth a trial. He advises that a large communication be established between the bladder and the diverticulum by the use of clamps and sutures after the manner of a gastro-enterostomy.

In two cases I tried to make the diverticulum a part of the bladder cavity by dilating the orifice, but this procedure was unsuccessful in each instance as contracture followed. One patient was operated on a second time, and the other still has trouble.

TECHNIC OF OPERATION

In all the cases in which I have removed the diverticula by the method of first converting them into solid tumors, the following method was used:

1. Nitrous oxid-oxygen anesthesia with local infiltration of novocain.
2. Transverse incision through skin and fascia.
3. Infiltration of muscles. Separation of muscles and bringing the bladder up with curved forceps, and then dissecting the bladder free from the peritoneum (Fig. 1, *A* and *B*).
4. Packing the diverticula tightly (Fig. 2).

Then with the fingers inside the bladder, the index-finger in the opening of the diverticulum and the thumb on the outside, the attachment to the bladder is exposed and divided (Fig. 3).

The bladder is then retracted away from the diverticulum, traction is made on the tumor and it is dissected free from the surrounding tissue (Fig. 4).

With some of the tumors this last step was not necessary—the tumor could be brought up first and the dissection from the attachment of the bladder made secondly.

REPORT OF CASES

I wish to append herewith report of seven cases, in six of which operation was performed for the removal of the diverticula. Two other cases which I have seen are not classified herewith because I did not determine the depth or size of the diverticula, and the openings that were visible may have been but shallow depressions; but the cases cited are those which had a definite well-marked and demonstrable sac. Six of these were men and one a woman, the oldest was aged 78 and the youngest 43, average age 59. In every case there could be demonstrated an obstruction to the urethral outlet. The diverticula were single in four cases and multiple in three. The largest number in any one case was four. In one case I first did the operation of enlarging the diverticulum opening. This not giving relief, I later resected the diverticulum and drained through the perineum.

Case 1.—Man aged 49, a letter carrier, referred by Dr. Wheeland. Complaint was bladder trouble. Family history had no bearing on the case. The patient had specific urethritis when 44—five years previous. Denies any luetic infection. Two years ago began to have difficult urination. Lost 10 to 15 pounds in the last year or two. No other symptoms besides the ones mentioned above. Has catheterized himself since February, 1909.

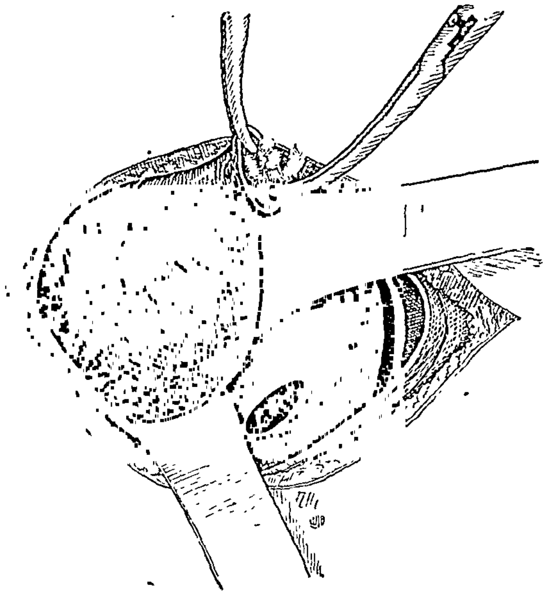


Fig. 4.—Removal of diverticulum.

Cystoscopic Examination.—Bladder capacity 300 c.c. Required many repeated irrigations in order to get the fluid

---

[4] Squier: New York Med. Jour., 1914, xcix, 1026.

Catgut was placed around the ureter after the tumor was removed and it was transplanted into the bladder through the opening from which the diverticulum had been severed. Prostate was quite large and bulged into the bladder cavity. As this was considered to be the cause of the diverticulum, prostatectomy was done. Prostate was easily removed; middle lobe was quite large. The mucous membrane over the cavity from which the prostate had been removed was pressed down with small narrow strips of gauze. Catheter allowed to remain in through the urethra, and the bladder wound left open. Small rubber cigarette drain was placed outside of the bladder in the cavity from which the diverticulum had been removed. This diverticulum was quite large.

Postoperative roentgenoscopy with collargol revealed no evidence of any former tumor. Patient made an uninterrupted recovery and has been entirely well since. Able to empty bladder easily and completely.

Case 7.—Woman, aged 74. Complaint, frequent and painful urination. Family history is unimportant. Personal history, general health only fairly good. Pneumonia at 68. For years she has had extreme annoyance during urination because of a very painful caruncle of the urethra. This had been removed, and while relieved of most of the annoyance which she previously had, she still had frequency of urination and pus in the urine. She has had autogenous vaccine treatment.

Cystoscopic Examination.—This disclosed a small opening on right side of bladder above ureter. Roentgenoscopy with collargol showed a well-defined diverticulum on right side of bladder.

Operation.—Nitrous oxid and novocain. Transverse incision; fascia divided transversely and dissected free. Muscles separated, bladder exposed and incised. Interior of the bladder exposed with a smooth flexible retractor and the opening of the diverticulum plainly seen. Through this into the diverticulum were inserted narrow strips of gauze sufficient in amount to pack the diverticulum very tightly. Then with fingers inside of the bladder and tip of the index-finger at the entrance of the diverticulum the bladder was pulled aside, the adjoining tissues dissected free and the neck of the diverticulum exposed. Without any difficulty I was able to dissect around this, bringing it up; as it was a well formed semisolid tumor now, it was easily removed from its bladder attachment. The opening in the bladder was closed with No. 00 chromicized catgut, both from within and outside the bladder.

Patient made an uninterrupted recovery and recently reported that she is entirely well. Postoperative collargol picture shows no evidence of former tumor.

1021 Prospect Avenue.

ABSTRACT OF DISCUSSION

Dr. Martin Krotoszyner, San Francisco: The diagnosis of diverticulum of the bladder may occasionally be very difficult, even in the hands of the trained cystoscopist. I recently observed a man of 57 who entered the hospital with a severe pyuria which I at first interpreted to be due to involvement of the so-called middle lobe of the prostate. For two or three weeks it was impossible to obtain a clear picture of the bladder, in spite of repeated cystoscopic sittings, on account of the fact that invariably the almost clear bladder fluid suddenly became cloudy. I suspected the pyuria to be due to a pyonephrotic focus until this suspicion was removed by successful bilateral ureteral catheterization. Finally, after a great deal of laborious work, it was possible to clear up the bladder to such an extent that a large diverticulum could be seen, situated about 1 or 2 cm. below and to the left of the right ureter.

Dr. George Smith, Boston: Has Dr. Lower had any of these cases which have not shown much residual urine? Has he met any diverticula in which the mouth was so small that the contents would not come out on catheterizing the bladder?

Dr. William E. Lower, Cleveland: In reply to the question of Dr. Smith, in only one case was the orifice so small and the muscular contraction about the opening so strong that the contents could not be emptied by catheterization. This is a condition that must be borne in mind, and especially if we depend on the amount of residual urine as a diagnostic factor.

ACUTE PARENCHYMATOUS GLOSSITIS *

VIRGIL LOEB, A.B., M.D., D.D.S.

ST. LOUIS

The basis of this paper is a case of acute parenchymatous glossitis which I reported superficially in a paper entitled "Unusual Cases in Oral Surgery," read before the St. Louis Dental Society during May, 1911.

In connection with the detailed report of the case which I now propose to give, I desire to enter into a brief discussion of the disease and the literature relating to it. Butlin, in his book on "Diseases of the Tongue" says:

> Acute inflammation of the tongue is admitted by all observers to be a rare disease. Even the largest hospitals in this country [England] do not, in most years, record a single instance. Yet the history of the disease may be written with tolerable accuracy, for the very rarity of acute glossitis has led to the publication of a goodly number of cases in medical literature.

From the reports of cases which I have been able to review, acute parenchymatous glossitis has been spoken of as acute glossitis, idiopathic glossitis, phlegmonous glossitis, deep glossitis and interstitial glossitis.

Baldwin[1] describes a case which he had observed, under the title "Interstitial Glossitis," and Wagner[2] reports a case using the term "Idiopathic Glossitis." Saenz[3] and Dupérier[4] each speak of the disease as *Glossité profonde* rather than as *Glossité parenchymateuse.*

The disease is noticed most often during the winter months and attacks males more frequently than females. It occurs chiefly between the ages of 20 and 40, though Bennett,[5] in reporting a study of the literature from 1816 to 1906, states that cases have been reported at 9 months and 80 years of age.

Among the etiologic factors relating to acute parenchymatous glossitis, exposure to cold and dampness together with a lowered general resistance seem to be the most potent. Infectious diseases also play an important rôle. Weis[6] described a case which followed the desquamation of scarlet fever. Sabrazes, Bonnes and Parsat[7] report a case in a man whose children had had scarlatina just previous to his illness and they thought the patient may have had a scarlatinal throat. No specific germ has been isolated, though streptococci and staphylococci have been found.

Predisposing causes are injuries to the tongue from carious teeth, faulty dental work, tooth-picks, splinters of wood and other foreign bodies. Gerhard[8] adds as further causes the action of corrosive substances, hot liquids and the stings of insects.

---

* Read before the Section on Stomatology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

[1] Baldwin: Cincinnati Med. Jour., 1896, ii, 143.

[2] Wagner: Med. Rec. New York, 1893, xliv, 523.

[3] Saenz: Contribution à l'étude de la plossiti *profonde aiguë*, Montpellier, 1906.

[4] Dupérier: Thèse de Paris. 1906-07.

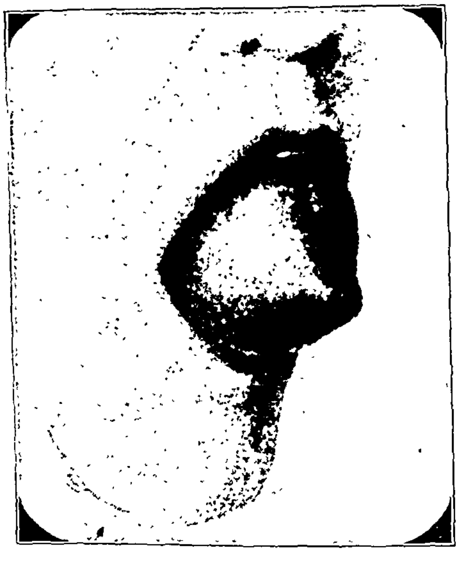
[5] Bennett: Washington Med. Ann., 1906-07, v, 267.

[6] Weis: Loire méd., 1908, xxvii, 366.

[7] Sabrazes, Bonnes and Parsat: Presse méd., 1906, xiv, 303.

Sore throat often precedes an attack as in cases described by Washburn[9] and Green.[10]

The disease is usually ushered in by pain which is located in the tongue but often in no specific area. This pain comes on suddenly and increases gradually in severity. Accompanying it, though not always immediately, there develops a swelling of the tongue which increases rapidly until the organ fills the entire oral cavity, and often protrudes outside the mouth. In some cases designated as hemiglossitis, the swelling is limited to one side, usually the left. Bennett[5] found from a study of 145 cases that in 85 the entire tongue was involved. In 36 the glossitis was limited to one-half of the tongue, and of this number 20 cases were on the left side. Thomas[11] reports one case of hemiglossitis and Duckworth[12] and Copland[13] each report four. In the majority of these the left side was involved. Coincident with the swelling there is a rise of temperature with a corresponding pulse and salivation. The tongue is covered with a dark brownish fur on the dorsum and is tense, dry and hot. Deglutition is impossible and breathing very difficult. There is extreme discomfort and the facial expression is one of great anxiety. The cervical glands are usually palpable.



Dr. Loeb's case of acute parenchymatous glossitis.

Butlin[14] says the diagnosis of acute parenchymatous glossitis "is generally so easy that it seems almost unnecessary to speak of it." He states, however, that it is at times difficult to differentiate from acute edematous swelling due to salivary calculus and other affections of the floor of the mouth. Bennett adds acute ranula and herpes of the mouth, lips, tongue or pharynx as diseases from which it should be diagnosticated.

The pathology is simply that of an acute violent inflammation. Thebaud[15] says there is a violent injection and swelling of the lymph-vessels chiefly in the muscular structure of the tongue.

The prognosis of acute parenchymatous glossitis should be guarded, on account of the complications which may arise in all cases. Bennett, however, states that of 145 cases which he reviewed, only four ended fatally or less than 3 per cent. Recovery may be by resolution, or suppuration may develop. In some cases gangrene takes place, which renders the outcome very grave.

The treatment should be immediate and surgical. Deep longitude incisions along the dorsum of the tongue on either side of the median line seem to be generally accepted as the best procedure. Sonbeyrau[16] recommends a median incision.

Saenz[3] after a study of eight cases, states that since glossitis often ends spontaneously, it is prudent to await this, provided no alarming complications develop. Dupérier[1] also reports eight cases, but recommends immediate deep longitudinal incisions.

If suppuration has developed, free drainage must be obtained. Thebaud[15] reports seventeen cases and in his conclusion states that when a deep abscess develops at the base of the tongue which cannot be reached by the oral route the same must be attacked from without.

In cases which develop gangrene, cauterization should be used. In addition to the purely surgical treatment, antiseptic mouth-washes should be used freely, together with constant cold applications to the tongue. Pain should be allayed by the use of morphin, etc.

REPORT OF CASE

Patient W. O. A., white, married, aged 50, traveling salesman by occupation, consulted me first Nov. 9, 1910. Patient gave the following history:

Eleven days ago while in the South he began to notice pain in his tongue. He could locate it at no definite point but said it seemed to be in the substance of the organ. The only cause which he could give was that he was in the habit of whittling pine sticks and sticking the splinters in his mouth. He thought he had scratched the under surface of his tongue with one of these splinters. He also had been chewing some fresh perique tobacco. The pain became steadily more intense, especially on the right side, and was more noticeable when swallowing. He remained in the South for several days under treatment, but obtained no relief.

The patient was a well-built, robust man, color good, with facial appearance one of extreme uneasiness. Physical examination, negative. Personal history, negative. Denied syphilis.

Examination of his mouth revealed a somewhat inflamed mucous membrane and several carious teeth. The tongue was apparently not swollen, nor was it especially inflamed. There was a small abrasion which was healing on the right side, but otherwise it was apparently normal. One gland in the right anterior cervical region was slightly enlarged. Temperature normal. The patient was extremely nervous. He said he had taken practically no nourishment for three days. On pressure over the right side of the tongue, far back near the base, the patient complained of excruciating pain.

The patient was sent to a hospital and cold applications to the throat and tongue ordered. Aspirin, 5 grains, was given every three hours. That night the patient slept fairly well and felt somewhat relieved the following morning. An examination of his urine at that time showed some albumin, hyaline and granular casts and a few pus cells.

The relief which the patient had had continued only until the afternoon of the second day in the hospital, November 10. The pain then returned in increased severity. Large doses of aspirin were given and veronal in 5-grain doses, with little relief.

November 12, for the first time, a slight edema around the orifice of the right Wharton duct was noticed. There was still no swelling of the tongue. That afternoon a neurologic examination was made by Dr. S. I. Schwab, but nothing which might be responsible for the pain was found.

By November 13, a most spectacular change had taken place in the tongue. It had become swollen until it prac-

---

8. Gerhard: Codex Medicus, Philadelphia, 1896-97, iii, 42.
9. Washburn: Med. Rec., New York, 1896, i, 172.
10. Green: Med. and Surg. Rep., Philadelphia, 1891, lxv, 333.
11. Thomas: Marseille méd., 1905, xlii, 512.
12. Duckworth: Liverpool Med. Chir. Jour., 1883, iii, 195.
13. Copland: Dict. of Med., iii, 1077.
14. Butlin: Diseases of the Tongue, 1900, p. 69.
15. Thebaud: Paris Thèses, 1893-94.
16. Sonbeyrau: Montpellier méd., 1902, ii, 687.

tically filled the entire mouth cavity. It protruded from the mouth, was very dry and hot. Temperature 100 F. The patient was semiconscious, breathing very heavily. Nourishment was given by nasal tube and water by rectum. A blood-count was made showing 12,478 leukocytes. Urine examination showed a large amount of albumin, hyaline and granular casts and a few blood and pus cells.

A consultation was held with Dr. P. Y. Tupper and an immediate operation determined on.

After anesthetizing the tongue with local applications of cocain, I introduced an aspirating needle for the purpose of determining whether or not an abscess was present, and also for the purpose of reducing the pressure by local bleeding. I aspirated ten times in as many different places, and at different depths, but found no pus present. The bleeding was profuse. The patient was put to bed and continuous ice-cold irrigation was applied to the tongue. Nasal and rectal feeding were continued.

Patient had a most uncomfortable night, with severe pain, which was relieved only by a large dose of morphin. Patient felt better by morning. From this time he began to improve. The temperature rose to 101, dropping gradually, and except for acute exacerbations of short duration the pain became less intense. Within four days the tongue had become reduced to such a size that the patient could talk fairly audibly and could swallow without great discomfort. Most of the pain from now on was due to ulcerations on either side of the tongue, caused by pressure against lower right and left carious molars.

From this time until the patient left the hospital, a period of two weeks, the treatment consisted of cold applications to the tongue and applications of argyrol in 25 per cent. solution, to the ulcerated areas. After leaving the hospital the patient gained strength rapidly and on Jan. 3, 1911, was pronounced entirely well. He was treated by Dr. J. S. Myer for his acute nephritis, from which he also recovered.

537 North Grand Avenue.

ABSTRACT OF DISCUSSION

Dr. Gordon New, Rochester, Minn.: About three weeks ago I saw a case almost as extensive as this, following an abscess at the root of a third molar tooth. The patient recovered, however, after drainage in the submaxillary region. Other than this I believe there is nothing to record about the case.

Dr. F. B. Moorehead, Chicago: It is difficult at times, if not impossible, to make a differential diagnosis between parenchymatous and interstitial inflammatory conditions excepting, of course, microscopically. A boy of 17 was sent to us with a history of acute abscess from the lower incisor tooth. The tooth had been extracted some ten days previously, and following the extraction an extensive swelling had developed, more in the floor of the mouth than in the tongue, which had the appearance of a typical Ludwig's angina. The swelling went backward and the patient had difficulty in swallowing; the tongue began to enlarge and completely filled the mouth. The swelling in the lower part of the mouth and tongue made tracheotomy necessary. The pain was very severe, temperature 102.

Dr. Theodore Blum, New York: What was the infection from which this came?

Dr. Moorehead: A simple alveolar abscess, I imagine. I did not see the case until the original focus had cleared up, the patient coming to me with a mass of induration on the floor of the mouth.

Dr. Blum: Was a roentgenogram taken?

Dr. Moorehead: Yes, but it showed nothing except the empty socket from which the tooth had been removed. There was no other bone involvement.

Dr. M. I. Schamberg, New York: The cases of glossitis that we come in contact with are usually secondary to other disturbances, as stated by Dr. Moorehead. The description of the case which Dr. Moorehead has given us is identical with a case which recently came under my care, in which the suppurative site was in the submaxillary region and had extended to the tongue, so that the tongue showed a certain amount of the extension of the inflammation. Another patient was sent to me as a case of glossitis showing evidence of swelling in the tongue in which the physician in charge suspected a specific origin. The history of the case as obtained from the patient showed no history of an initial lesion. The patient was married, his wife had borne several children and there had been no miscarriages. On examination I determined, with some difficulty, a slight ulcerated spot on the lateral aspect of the tongue in relation with two or three molar teeth. This they attempted to explain because of the swollen tongue coming in contact with roughened teeth. I was, however, suspicious that the case was malignant and took a fairly good section from that portion of the tongue and sent it to one of the best pathologists in New York. The report came back that it was not malignant. In spite of this I persisted in the view that it was malignant and that we had not reached the tissue showing the typical pathologic changes. The case passed out of my hands at that time because the physician called in some one else for a Wassermann. A positive Wassermann was found and the case was treated with salvarsan. There was an improvement, and I was also informed subsequently that the lesion that was removed from the tongue was malignant. It is important in these carcinomas of the tongue to remember that they are often deep seated and that the removal of superficial tissue will not determine it. I thought I had gone well into this ulcerated region and that I had obtained some of the involved tissue, but the diagnosis was made absolute by the pathologic finding after the removal of the tongue.

These tongue cases are exceedingly malignant and the only salvation is to see them as early as possible. In another case there was a slight ulceration on the side of the tongue which attracted attention. The patient was sent to a physician who diagnosed it as an initial lesion of syphilis and treated the patient for chancre. When the patient came to me the tongue was well indurated beyond the median line. I advocated the removal of the tongue, but the patient would not consent to the operation and went to an untimely death six months later. The only chance in these cases is to make an early diagnosis and they should be looked on with grave suspicion, particularly cases of glossitis that do not show suppurative lesions or in which the blood-count does not indicate the presence of disease in the system.

Dr. A. H. Levings, Milwaukee, Wis: So far as my experience goes, practically all of these cases are due to infection. It may be either streptococcic or staphylococcic. The point of infection we may not be able to determine, but it is usually some scratch or abrasion as from a roughened tooth, or it may be the sting of an insect. I have never seen a case of parenchymatous glossitis that I thought I could not differentiate from carcinoma. Dr. Loeb's treatment of the case I think was excellent; either make numerous punctures or make a free incision, the idea being to deplete the tissues, cause free hemorrhage, and get rid of the infection.

Dr. Virgil Loeb, St. Louis: I had intended to make a deep incision, but finding no pus present and getting satisfactory results by aspiration, there was no occasion for such a procedure. In differentiating from any malignant disease of the tongue, I examined the patient thoroughly before the swelling developed and there was no sign of induration.

Public Health and Personal Hygiene.—Public health is made up of units, personal health is public health, personal hygiene is public hygiene. If perfect health on the part of the farmer is considered, he will not allow milk to be dirty, allow pollution to get into the well or brook or stream. If you are working for public health you are working for personal hygiene, individual, clean, sanitary living and if each individual would follow that out public-health problems would be largely solved. Health doctors to be successful must expect to train the individuals they come in contact with in the laws of personal hygiene.—W. H. Sawyer, *Journal Michigan State Medical Society.*

A STUDY OF THE BACTERIOLOGY OF ALVEOLAR ABSCESS AND INFECTED ROOT CANALS*

THOMAS L. GILMER, M.D., and A. M. MOODY
CHICAGO

Since Billings, Rosenow and other internists have found the mouth a prolific primary focus of infection, fraught with secondary manifestations of grave consequence, it has been thought desirable that a closer study of the bacteriology of alveolar abscess, both acute and chronic, as well as the infectious material found in pulp chambers and root canals, should be made.

The impression generally entertained that alveolar abscess, both acute and chronic, is due to the *Staphylococcus albus* and *aureus,* seems from our study not well founded. We have received this accredited opinion, not from written statements, but from questions put to those whom we knew had had such experience in the observation and treatment of alveolar abscess, and their answers have been expressed as before indicated.

One looks in vain for statements in books which treat of alveolar abscess of opinions on the bacteriology of this disease. The subject has been thought either of too small consequence to warrant discussion, or too difficult of solution. We recognize that abscesses of the jaws are by no means the only mouth conditions to which joint, heart and other lesions may be attributed, but we have made our study of the bacteriology of tooth infections partly because so little attention has been given it and because we were able to gather from such foci specimens with less liability of contamination, than from pyorrhea alveolaris pockets, for instance. The mouth, even in health, affords a great flora, both of pathogenic and non-pathogenic bacteria, therefore great care and painstaking was necessary in the collection of material which would be uncontaminated.

In gathering specimens from acute alveolar abscess the field to be incised was made as nearly aseptic as possible by thorough washing with 50 per cent. alcohol, and as soon as the incision was made a sterile pipet was introduced deeply into the abscess and the pus collected. The pipet was then sealed and sent to the laboratory.

In the chronic infections, abscesses without sinuses were selected and similar precautions observed for the collection of specimens. In others, the pus was collected direct from the pulp canals of teeth having *no* cavities of decay; the tooth being thoroughly washed with alcohol after the application of the rubber dam, then drilled through into the pulp chamber with a drill, and as the pus welled up from the canals it was received in the pipet. In others, the pus was collected from the apices of freshly extracted teeth which had been removed under careful aseptic precautions. The specimens from septic root-canals were gathered from teeth recently removed. In order to expose the root-canals the teeth were enveloped in sterile gauze and placed between the jaws of a vise and crushed, others were flamed and the roots then split with sterile bone-cutting forceps. These methods exposed the pulp-chambers and root-canals from which the specimens were obtained. In some of the teeth thus examined there was found pulp-tissue partly gangrenous and partly alive, in others only necrotic elements of the pulp, the pulps in some having been dead for a long period of time, as indicated by the presence of old imperfect root-canal fillings.

The presence of bacteria of various kinds within the structures of the teeth and the tissues adjacent to them was demonstrated many years ago by Miller (Micro-organisms of the Human Mouth) and others. From our work it would seem that we are now able to classify the more important organisms which correspond in many respects to descriptions and photomicrographs of bacteria of the dental structures appearing in the literature as early as 1881. Our conclusions are arrived at from some forty odd bacteriologic examinations, which it has been our privilege to make of material from acute, subacute and chronic or latent infections of the jaw and teeth. There were sixteen acute alveolar abscesses, eighteen subacute or chronic abscesses and eight teeth with diseased root-canals from which material was received for bacteriologic examination.

In the main there has been a great similarity in the results obtained. We believe that to obtain such constant results as we have, the same technic should be employed. That technic is the following:

After receiving the material to be examined, collected in the manner described above, it is smeared on the surface of blood-agar or ascites-dextrose-agar slants. One tube is placed under anaerobic conditions by the addition of pyrogallic acid and a few drops of sodium hydroxid to the tube after the cotton plug has been pushed in about one-third the distance from the top. The tube is then plugged with a plain cork and sealed with paraffin. The other inoculated tube is kept under aerobic conditions and both are placed in the incubator at 37 C. (98.6 F.).

Within twenty-four hours one will usually see a fine granular growth over the surface of the aerobic blood-agar slant. If one examines this closer the growth is seen as fine greenish colonies. The water of condensation contains chains of these organisms which are usually Gram-positive. There may also be a similar growth in the anaerobic tube but one cannot distinguish the green color. At the end of forty-eight hours, however, there is quite a change in the appearance of the anaerobic growth; it is very luxuriant, grayish-white in color and the colonies have a great tendency to fuse. On opening this tube one notices immediately a very offensive odor.

The above hurried gross description of the cultures will hold for the great majority of the specimens from the chronic infections examined. The variations are due to the predominance of one or other of the principal organisms present, and to whether or not the material cultured has been contaminated with unimportant bacteria from the mouth. The bacteriologic results in our series of acute abscesses differed mainly in the aerobic findings. In these there were varying degrees of hemolysis of the blood.

From the microscopic examination for further identification of the organisms in question, we found the predominating organism to be a streptococcus. We have obtained many graded variations from a hemolytic streptococcus with a wide zone of hemolysis in the acute abscesses, to a *Streptococcus viridans* in the chronic, and just recently one in which a *Streptococcus mucosus* was the predominating organism. These organisms, particularly the green-producing streptococci will in many instances grow as well anaerobically as they will aerobically.

---

* Read before the Section on Stomatology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

* From the Laboratory of St. Luke's Hospital.

The anaerobic cultures which do contain streptococci are rarely pure. Some contain *Bacillus fusiformis* in varying numbers. A few of these tubes, however, have practically pure cultures of fusiform bacilli.

The above results are what we have learned to expect, but there are many other organisms which occur with these. Aerobically we occasionally obtained isolated colonies of *Staphylococcus aureus* or *albus, Micrococcus catarrhalis,* and some unidentified saprophytic organisms. In two instances a diphtheroid bacillus has been found which grows under both aerobic and anaerobic conditions.

Anaerobically, in old cultures, we have seen in material from three different abscesses a black pigment-producing organism. This organism is slow growing and does not usually appear for about five days. We do not believe that it is of any importance in these infections.

In three of the chronic cases from which material was examined the patients were treated with autogenous vaccines with strikingly beneficial results. The vaccines were made from the cultures of both the aerobic and anaerobic organisms, and were given in graded doses at five-day intervals.

These were chronic suppurations, following that class of acute infections of the mandible characterized by much brawny swelling, persisting over a week or more with little or no indications of pointing. The pus discharge continued with no seeming diminution for several weeks after the acute symptoms had subsided. In each instance the pus flow stopped promptly on the use of the vaccine treatment.

Those who have made extensive observations of the tendency of acute attacks of alveolar abscess recognize that they occur epidemically. Whether the epidemics of streptococcus nose and throat infections follow or occur simultaneously with epidemics of alveolar abscess is a question both of interest and importance. We have not sufficient data to warrant a definite statement relative to the subject, however, since we have found in both infections the same bacteria; and as both occur epidemically it may be discovered that there is a very definite relationship between the two infections.

It seems reasonable to suppose that the presence of the streptococcus of nose and throat infections may easily cause simultaneous or secondary infections in the jaws, the organisms reaching the apices of the roots through cavities of decay in the teeth, or through the circulatory channels.

Since the discovery of a positive relationship between tonsil infections and secondary manifestations in other organs and parts, tonsils have been removed wholesale, in some instances on slight provocation. Their removal has, we fear, become with some almost a fad. A similar fad is growing up relative to the removal of teeth, since the discovery that jaw abscesses and pyorrhea alveolaris are equally as potent foci for secondary infections as are the tonsils. Some physicians are rather indiscriminately sending their patients to the extraction specialist, requiring removal of several or all of the teeth, supposing them to be a factor in some lesion, when their removal is not always justified. A roentgenogram, if properly made, is infallible, and can be absolutely relied on providing its interpretation is correct, but an improper exposure may lead one, if inexperienced, to mistake a part of the maxillary sinus for an abscess at the end of the roots of the second bicuspid or first molar. Other errors from incorrect readings may lead to similar wrong conclusions.

Some jaw abscesses may be cured by treatment through the tooth's root, still others by surgical interference, other than by extraction. Pus appearing at the free margins of the gums does not always indicate the so-called pyorrhea alveolaris. It may be due to lime deposits, the removal of which permits a speedy return of the gums to health. The diagnosis of this class of pathologic conditions of the mouth requires special study and an educated technic.

People's Gas Building—St. Luke's Hospital.

MOUTH INFECTION AS A SOURCE OF SYSTEMIC DISEASE *

FRANK BILLINGS, M.D.
CHICAGO

The subject assigned is "Mouth Infection as a Source of Systemic Disease." I shall confine my remarks to infection of the jaws (alveolar infection) as related to systemic disease. Many radiographic films of the jaws have been made from patients in our clinic at Rush Medical College and the Presbyterian Hospital suffering from chronic arthritis. One film shows an alveolar abscess occurring in a patient with Hodgkin's disease. These films as a means of recognition of alveolar infection are not new to members of this section, but this method of examination of alveolar disease is not sufficiently utilized by dentists and physicians generally. It should be used, for by no other method may one know the exact condition of the alveoli and roots of the teeth. Alveolar infection and abscesses may be primary and due to unhygienic conditions of the mouth and I am sure it is often intensified and prolonged by irrational dentistry—teeth with infected pulp crowned or improperly filled. General malnutrition (scurvy, etc.) may cause mouth infection and alveolar disease. But whether primary or secondary, alveolar focal infection may be the dominant factor in the production of systemic disease, of which malignant endocarditis (*Streptococcus viridans*), chronic arthritis and myositis are examples. From the infected alveoli and tooth canals we have made bacterial cultures. The dominant organisms belong to the streptococcus-pneumococcus group. I would refer you to the brilliant results of the investigation of our colaborer, Dr. E. C. Rosenow, on the mutation of cultural and pathogenic characteristics of this group of bacteria. In addition staphylococci, a fusiform bacillus, the *Bacillus aerogenes capsulatus,* and various saprophytic organisms are found. The streptococcus-pneumococcus group apparently comprise the important pathogenic bacteria related to systemic disease. In five patients suffering from Hodgkin's disease, an alveolar abscess has culturally yielded the diphtheroid bacillus, which is found in the enlarged lymph-glands in that disease. We also know that systemic actinomycosis may arise from alveolar infection due to the ray fungus.

---

* Address before the Section on Stomatology, American Medical Association, Atlantic City, June 24, 1914, in a symposium on Mouth Infection.

Systemic disease due to a focus of infection anywhere, is probably always hematogenous. The study of the infected tissues of experimentally inoculated animals and the infected muscles, joint tissues, lymph-nodes proximal to infected joints, nodes on tendons, etc., of patients, yield specific bacteria, and histologically there is found embolism of the small and terminal blood-vessels. Local hemorrhage and endo-arterial proliferation result in interstitial overgrowth, cartilaginous, osseous, vegetative and other morbid anatomical changes, dependent on the character of the tissue infected.

Partial or complete ischemia of the tissues due to the embolism is an important factor in the production of the morbid anatomic changes. Oxhausen of Berlin has produced, in animals, aseptic osteochondritis resembling arthritis deformans, by ligating the arteries supplying the joint tissues. These principles are, I think, susceptible of proof, that a chronic alveolar infection, and chronic foci in other regions also, may cause systemic disease by hematogenous bacterial emboli, which infect and at the same time deprive the tissues of nourishment. Local infection of muscles, joint tissues, etc., and lessened blood-supply result in the peculiar morbid anatomy of the respective tissues.

To investigate and manage these patients requires team work of the clinical and laboratory workers. The clinician must carefully examine the patient, exhausting every detail in the personal history. The skill of the dentist, the nose and throat specialist, the gynecologist, the genito-urinary expert and others may be necessary to locate the foci of infection. The focus must be destroyed. Tissues and exudates of foci should be carefully examined and bacterial cultures made. Vaccines of the dominant bacteria may be made for subsequent use.

With the source of the infection removed, the attempt should be made to increase the defenses of the body against the systemic infection. This involves a long and tedious period in the chronic joint infections and also in some other systemic diseases of focal origin. Rest, both mental and physical, is essential. Good, wholesome food, pure air, optimistic surroundings and, if necessary, restorative tonics of iron and other drugs. Pain must be palliated by simple drugs like the salicylates. After a time passive exercise and later active graduated exercise must be followed to aid in the restoration of local circulation and to hasten restoration of the morbid changes of the tissues. Autogenous vaccines may be used in the attempt to improve the defenses of the body. In chronic arthritis, with the circulation of the infected tissues obstructed embolically, antibodies in the blood stream, even if augmented by vaccines, would have but little effect locally. In the later stages of chronic arthritis when the local circulation has been so improved that the tissues are flooded with blood, vaccines will be of undoubted value. Patients may, however, be cured of chronic arthritis by the other measures named without the use of vaccines.

To recognize the character of this class of systemic disease and to manage successfully the patient, the physician must have absolute control. This implies hospital care where team work of the staff may insure qualified clinical and laboratory workers.

MOUTH INFECTION AS A SOURCE OF SYSTEMIC DISEASE *

C. H. MAYO, M.D.
ROCHESTER, MINN.

It has taken a long time for the general public to appreciate the full rôle of infection in the production of death, while even in the medical profession, more has come from the study of infections in the prevention of disease than in increasing the means of cure of disease, great as have been the results of treatment.

Since all animal life depends on some other form of cell life, vegetable or animal, it seems but the part of all life to carry on this process of germinative development and maturity. It is only the resistance of healthy cells that prevents the inroads of the myriads of ever-present bacteria and animal parasites which are striving to get a foothold that they may in turn carry on their life work. Disease, then, is an inflammatory process from infection and the efforts at repair. It may also be chronic from the failure of cell life through lack of defense, from defective nutrition and advancing age.

We still speak more or less lightly of the so-called diseases of childhood, and the time is not far past when mothers took their children to be exposed to whooping cough, mumps, etc. To-day the intelligent woman knows that it is not necessary that the vitality of the child should be jeopardized by such preventable diseases, and that when they occur it is through carelessness, neglect or ignorance on the part of some one.

A comparatively small number of infections occur through wounds of the cutaneous surface. Many of those affecting the special organs are incurred through direct or indirect contact, as those of the eye and of the genito-urinary system. They may make most serious inroads on the general health. Infections which produce the greatest number of diseases enter the system by way of the alimentary and respiratory tracts. Somewhere in the line, then, of the alimentary and respiratory tracts and in the excretory ducts of the body lie the sources of the entrance of organisms which terminate life in the majority of instances. The great importance of the well-known diseases of the nasal passages with their sinuses, the lymphoid tissue of the pharynx, including the tonsils, and the diseases of gums and teeth, which have been given prominence by the dental profession during the last three years, is now more generally appreciated.

The mouth is the harbor of many varieties of bacteria which are constantly taken into the stomach during the process of eating. We have long looked on the acids of the stomach as destructive to such bacteria, but Smithies, in a microscopic examination of gastric extracts from 2,406 different individuals with "stomach complaint" (dyspepsia, indigestion and the like), showed that irrespective of the degree of acidity of such gastric extracts, bacteria were present in 87 per cent. Morphologically cocci and diplococci were present in 83 per cent.; short and long rods (often of the colon group) in 58 per cent.; typical streptococci and staphylococci in 17 per cent. and *Leptothrix buccalis* in 24 per cent. In fifty-four cultural studies of saliva from "dyspeptic" patients, streptococci and staphylococci were demonstrated in over 80 per cent., bacilli in 66 per cent. and *Leptothrix*

---

* Address before the Section on Stomatology, American Medical Association, Atlantic City, June 24, 1914, in a symposium on Mouth Infection.

buccalis in more than 14 per cent. Comparing these figures, it would appear that the common forms of pus-producing organisms (streptococci and staphylococci) have their proliferation retarded in gastric juice, but that bacilli (often of the colon group) as well as *Leptothrix buccalis* thrive in the stomach.

Bacteria of various forms live in the small intestine, or at least pass through it or into the blood stream by way of the mucous membrane. They exist in such great numbers in the large bowel that, whether living or dead, they constitute a considerable bulk of the dejecta. During the last few years some important points have been added to our knowledge of bacteria. Living germ life in the blood, or bacteremia, occurs in all infectious diseases. According to their number and virulence, the blood responds in slight or extreme degree to the symptoms, general and local, constituting the disease.

We have long known that bacteria were specified in type and action in all diseases in which we have been able to identify a specific germ. Rosenow has done a great work in showing that changes in environment may so change bacteria that specific action varies. The appearance of the bacteria is also unlike that of the original cell. In the blood stream these various forms, once they enter it, are selective in choosing their location, thereby developing specific local disease. The old "idiopathic" osteomyelitis of the child we now know may follow a short time after a specific tonsillitis. Pyorrhea, tonsillitis or sinus disease may be the source of an infection which we call rheumatism. Root abscesses and pus pockets connecting with them are often the source of acute and chronic rheumatism. The nasal sinuses and chronic mouth and throat infections develop anaphylaxis from the constant poisoning, and their results are shown in hay fevers, asthmas, urticarias, etc. Rosenow's work is going far to show that ulcerations of the stomach are conditions in which the mucosa is attacked from behind through the blood stream by bacteria which live in the blood and have a selective affinity for these particular areas. Septic bile which, in the majority of instances, is caused by infection is carried to the liver through the portal circulation. It creates such changes in the bile that it fails to activate the pancreatic and duodenal secretion, thus making various phases of indigestion, with qualitative rather than quantitative food trouble. Lower down we have the appendix with its lymphoid tissue which approximates in character that of the tonsil. Here the acid types of bacteria have the same opportunity, could they but enter the blood stream, of making erosions of the gastric mucosa as the specific form which is found in the mouth. We may here note that acid-secreting or acid-bathed surfaces are very subject to cancerous change, while alkaline-bathed surfaces are much less liable to be involved. Saliva is neutral or slightly alkaline in health, yet less than 20 per cent. of people have healthy mouths. The infected mouth shows a tendency to the acid reaction and it is through this acid change that we have an additional danger in cell degeneration, of malignant type, from chronic irritation.

The stomach is the most common location of all cancers, while the alkaline small intestine is rarely subject to cancer and the duodenum is most resistant to it. The large bowel again reverts to an acid reaction and is very subject to cancer. So also is the bladder. These structures with acid secretion are of more recent development than are many tissues of animal life, several of them being classed as organs of convenience, which fact renders them possibly less resistant.

Certainly enough is known concerning infections and their mode of entrance, that the infected and diseased mouth and respiratory tract must be looked on as most serious menaces. Much may be done by more general and effective school inspection. The present generation of children will understand and demand protection for their children in time. The first teeth should be watched, that the second be not permitted to erupt irregularly, causing deformities. Jaws should be spread that the teeth may meet and the high arched palate, diminishing nasal breathing, thereby reduced. Tonsils and adenoids should be looked after, thus preventing ear and mastoid diseases, rheumatism, endocarditis, etc. In chronic and recurring diseases, a search must be made to establish positively the nonparticipation of each of the several sources of infection.

The physicians engaged in this line of observation require fully as much training in the rudiments of dentistry as the dentist does in the signs of infectious diseases. While we have leaders in all professions, through the energy of their kinetic glands, the big stick which leads to our advancement is in the hands of the progressive and educated public who are constantly demanding more of their dentists, of the medical profession, and of the state in protecting them against preventable diseases.

MOUTH INFECTION AS A SOURCE OF SYSTEMIC DISEASE *

E. C. ROSENOW, M.D.

CHICAGO

Cultures from emulsified tissues in various systemic disorders, such as the adjacent lymphatic glands draining the involved joints in arthritis deformans, in acute articular rheumatism, and the lymph-glands in Hodgkin's disease, have yielded interesting results. One striking thing in connection with some of the more chronic infections is that the character of the micro-organisms found in the lesion may be quite different from the character of the micro-organisms in the focus of infection at the same time. This, however, does not minimize the importance of the focus of infection in any way. The organisms found in the tissues may have undergone change. This fact should be borne in mind whenever autogenous vaccines are to be used. The poor results in some cases of arthritis, for example, following the use of autogenous vaccines prepared from the tonsils or other presumable focus, may be due to the fact that the organisms present in the focus at the particular time when the cultures were made were not like those actually infecting the tissues. And if so, the vaccine would fail to contain the proper antigen.

While the most common location of the focus in various infections is probably in the head, and hence the great opportunity for you, it may be located elsewhere. Thus in two cases of typical rheumatism we succeeded in isolating the *Streptococcus rheumaticus* from the stool; in one from an infected ingrowing toe-nail, and in another case from the wound in the thumb following a crushing injury.

---

* Address before Section on Stomatology, American Medical Association, Atlantic City, June 24, 1914, in a symposium on Mouth Infection.

The abscesses or bony changes found about the roots of teeth in various systemic diseases, especially in cases of chronic arthritis, may or may not be primary, but if found the condition should be corrected, because vaccine or other treatment largely fails so long as there exists an active focus of infection, as shown, particularly by Billings. My study on the effect of varying degrees of oxygen tension on the members of the streptococcus group, together with other facts, makes it likely that it is in the focus of infection that changes in virulence occur and the different affinities for various structures are acquired. In other words, the focus of infection is to be looked on not only as the place of entrance of the bacteria, but also the place where the organisms acquire the peculiar property necessary to infect. In the light of our present knowledge the argument that infections in the mouth are so common in individuals in apparent health, does not minimize their importance. These or other foci are so common in patients suffering from arthritis, neuritis, appendicitis, ulcer of the stomach and cholecystitis, goiter, etc., and so rare in individuals who have had superb health for years, that their direct etiologic rôle can scarcely be questioned.

Regarding autogenous vaccines, our ideas need to be revised somewhat in view of the fact that the vaccines administered are usually prepared from streptococci in the focus and which may or may not be the causative organism. The instances in which good results are obtained are probably those in which the focus harbored the causative organism and the vaccine prepared from it. The instances in which poor results are obtained may be due to the fact that the vaccine does not contain the proper antigen.

With regard to the foci: What are they, where are they, and what organisms are usually present? Probably the most common location of the focus or source of infection is the mouth. The tooth socket has a structure similar to that of the joints, and a blind abscess at the apex of a tooth may have no more significance than the lesion in the joint. While it is proper to remove the teeth that are abscessed in a case of that kind, we should not expect that that is necessarily the source of the trouble, but must look still further.

In connection with acute infections, the acute arthritis that we see in rheumatism, a few cases may be of interest. In the first case the patient had gone through the search for foci of infection; his tonsils had been removed, the teeth examined, and a thorough physical examination made. The patient had had repeated attacks of rheumatism which continued for years, and usually occurred in the fall. He came to me in the midst of one of these attacks and on examination I was unable to find any focus of infection that would account for the trouble. This particular attack followed some intestinal disturbance. On three occasions I was able to isolate from the intestinal tract a streptococcus which when injected into animals produced rheumatism. This attack cleared up and I immunized the patient for a long time with the vaccine prepared from the streptococcus from his stool in the hope that some unknown focus in the intestinal tract might clear up.

This patient went south, and while in the South he had some trouble with his teeth. He saw a dentist and the dentist happened to be a man who knew something about the work that Dr. Morehead and Dr. Gilmer are doing in regard to the teeth, and he found an abscessed tooth and pockets of pyorrhea. When he came back I examined the mouth carefully and found no evidence of infection until along the surface of the gums I raised the tissues and found pus pockets. There was not even inflammation on the surfaces, but with a probe I obtained pus from the pockets around the teeth from which I made a culture and produced rheumatism in an animal. The pyorrhea probably had existed for years. This illustrates how difficult it is to locate the focus.

Another case in which the focus of infection was entirely overlooked was that of a young lad who had an acute attack of rheumatism with endocarditis and pericarditis so serious that it was thought he would die. I was asked to see the patient, with some idea, I think, of giving a vaccine. On examination I found that the boy's thumb had been crushed off in an accident ten days before the rheumatism began. I obtained from a necrotic area remaining a culture of a streptococcus like that of rheumatism, and when injected into animals it produced rheumatism readily.

It will be seen that the question of the focus of infection is a matter not only for the stomatologist or the dentist, but for the general practitioner, the surgeon; every branch of medicine needs to be taken into consideration to run the matter down and find the focus from which the organism gains entrance to the body.

PERIDENTAL INFECTION AS A CAUSATIVE FACTOR IN NERVOUS DISEASES *

C. BURNS CRAIG, M.D.
Chief of Clinic, First Division, Neurological Institute
NEW YORK

The presence of pus in a body cavity has long been considered a finding of the utmost importance, of even grave significance, to which an almost innumerable number of symptoms may be attributed. Until recently, however, the existence of pus around the teeth has been lightly regarded and often rejected as a possible cause of serious systematic disorder. The delay in appreciation of the importance of the presence of infection about the teeth is, doubtless, largely due to the familiarity of the physician with the condition in patients whose symptoms seem too remote from the mouth to have any connection with it. Then, too, it cannot be denied that there are persons suffering from pyorrhea alveolaris in whom it has remained a purely local process.

The results of peridental infection would certainly be more disastrous were it not for two fortunate factors of safety, the one, anatomic, the other physiologic. The former is the fact that the pus usually has free drainage into the mouth. The latter factor is the establishment by the body tissues of various degrees of immunity against a continuous bacterial intoxication, for example, from *Bacillus coli communis*. Just as the colon bacillus sometimes overpowers the individual's resistance and produces a general intoxication, a localized collection of pus or septicemia, so may the bacterial flora of the mouth subdue the body resistance and originate an abscess, produce a general intoxication, or entering the blood-stream, may establish a new center of growth in another region of the body.

---

* Read before the Section on Stomatology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

We may well ask is the alveolar pus pocket the depot of origin of brain abscess in those cases the origin of which has been unexplained, in which there has been no abrasion of the skin and no aural or mastoid infection? A purulent process in the posterior urethra, in the vagina or in the tonsil is considered ample source for any arthritis, neuritis or endocarditis which may subsequently develop. Are we not then justified in considering a septic condition around the teeth a source of various disturbed states of health, no other cause existing? Especially is this probable when the correction of the local oral condition is followed by alleviation of the general symptoms. The proof of the responsibility of oral sepsis for certain diseases of the nervous system rests on no other evidence than that just expressed — when the dental condition is corrected the manifestation of disturbance in the nervous system disappears.

Peridental infection is by no means limited to the clinic patient, it is often found in those who have taken the utmost care of their teeth. In these cases the dental work has been faulty and the real status is only revealed by a roentgenogram of the jaw. Crowns and bridge-work are peculiarly liable to have incarcerated pockets of pus.

There seems to be no portion of the nervous system for which the subtle toxin of peridental infection has a predilection. Probably the most common symptom is paresthesia in the fingers and toes—a "pins and needles" sensation—a symptom common to other chronic intoxications. For a considerable period it has been observed that a bad condition of the teeth may be responsible for adjacent disorders, such as otalgia and tic douloureux, but the observation that stubborn neuritis of the sciatic or other nerve trunk or of the brachial plexus sometimes disappears after cleaning out the alveolar disease is of comparatively recent date. The continual swallowing and absorption of pus is undoubtedly the cause of disorders of digestion, headache and finally an anemic condition almost cachectic. This depleted, exhausted state may often be associated with a melancholic state. It seems a far cry from mouth infection to mental disease, but when one witnesses profound depression clear up following the drainage of several alveolar pus-pockets, one is persuaded that the chronic intoxication, the result of absorption from the pent-up infectious process, was an etiologic factor.

Cases of pachymeningitis within the cranium have been attributed by reliable men to peridental infection. Doubtless, also, the peridental membrane has been the portal of entry for infection, causing various forms of arthritis the etiology of which has been obscure. From a variety of disorders the result of peridental infection I have selected four of diverse character whose improvement, following a cleaning up of the dental condition, was rather striking.

Case 1.—Cardiac arhythmia associated with angina: The patient, a surveyor, aged 46, married, temperate in the use of stimulants and tobacco, began to be annoyed in August, 1912, with thumping of his heart at night. These attacks would awaken him out of a sound sleep, would last a few minutes and disappear. At first they occurred about every fortnight, but by December, 1912, the attacks of cardiac thumping were not only occurring every twenty-four hours, but were occurring in the daytime as well as at night.

In addition to the disagreeable pounding of the heart, pain had appeared. The pain at first crossed to the right side of the chest, but later into the left axilla and up the back of the head. This was accompanied by a feeling of anxiety and dread and compulsory immobility. In one attack consciousness almost failed. The only other illnesses the patient had ever had were lead poisoning in 1898 and "typhoid-pneumonia" in 1899. From these he had recovered completely and had enjoyed excellent health until this present illness. Syphilis was denied and the Wassermann reaction was negative. Neither clinically nor by Roentgen ray could anything pathologic be demonstrated in the mediastinum. The heart was of normal size and location. Accompanying the systolic sound was a subdued blowing murmur, and the pulmonic second sound was slightly accentuated. When not in an attack his pulse was regular and rhythmic, 70 per minute, and the systolic blood-pressure was 125 mm. Hg. He exhibited a coarse static manual tremor said to be familial. Examination of the blood, urine and gastric contents revealed nothing abnormal. A slight pyorrhea about the teeth was noticed but was thought insufficient to cause such grave symptoms. He was put on general hygienic and tonic measures and discharged. I was not fortunate enough to see him in an attack. Three months later the patient returned having made very little improvement. Roentgenograms of the jaws were then made and disclosed no less than three pockets of pus about the roots of the teeth. These were opened, drained and treated, and since that time, a period of practically six months, he has been entirely free from cardiac palpitation and its associated angina. Quite recently he writes, "I haven't had a shadow of trouble in the region of my heart."

Case 2.—Persistent periarthritis: A man, aged 46, of good health and temperate habits, free from venereal infection, developed two years previously moderate swelling of the tissues around the middle joint of the right finger. It became painful on movement and any trauma made it worse. Use of the joint, for example, playing golf, also aggravated it, but cessation of vigorous use didn't cure it. He had never been a sufferer from sore throat and was not otherwise rheumatic. He took the "cures" at Aix-le-Bains and Carlsbad without noticeable benefit to the joint. In February, 1914, he noticed some tenderness of a premolar tooth. Examination revealed a slight discharge of pus from the adjacent gum. The tooth was drawn and found to be abscessed at the root. Within a fortnight the periarthritis began to disappear and two months later there was no trace of it.

Case 3.—The commonest symptoms following absorption from peridental infection: A woman, aged 54, complained of "pins and needles" sensation in her hands and feet, pain and tenderness in the muscles of the back and calves, and considerable mental irritability. On examination she was found to be fairly well preserved for her years. Her heart was slightly enlarged in both diameters; pulse 84; blood-pressure 120; auscultation negative. In all the muscles of the back, particularly those above the spine of the scapula, were points tender on pressure; also various points in the intercostal spaces were tender on pressure, especially the left border of cardiac dulness. Squeezing the muscles of the arms and calves caused considerable pain. There was no definite nerve-trunk tenderness. Besides this the physical examination showed nothing of significance except a profound pyorrhea alveolaris.

After a week of eliminative and tonic measures, during which no improvement was evident, she was advised to have the dental condition remedied. A dentist extracted several carious roots and cleaned up the pyorrhea around the better preserved teeth. Within two weeks her gums looked comparatively healthy. Coincident with the improvement in her oral condition the tender points in her muscles and the paresthesia in the hands and feet diminished. Eliminative methods were continued for another three weeks, at the end of which time her muscles were in a comparatively normal state.

Case 4.—Presenting a picture of an agitated depression in which the presence of alveolar pyorrhea of long standing was evidently an important exciting factor, but not, perhaps, the primary cause:

The patient, a woman, aged 59, well preserved and of more than average mentality. She sprang from a long-lived non-nervous stock; she had passed through the climacterian twelve years before without unusual disturbance. During the past three years she had sustained a series of shocks with great fortitude and for the time being without telling effect on her nervous system. Three years previous she lost her father, a year later her mother died. During the week of her mother's death she had had a nasal operation performed. Soon after this, financial losses occurred which were the cause of considerable worry. The patient continued in reasonably good health for over a year, that is, until six months previous to entering the hospital. At that time she went to a fashionable sanatorium, more as a pleasure resort than for treatment. While there she began to have attacks of dizziness. A physician told her she was suffering from mild heart-disease and prescribed Nauheim baths. After she had taken eleven baths the present "nervous breakdown" began.

When first seen the patient was greatly depressed and nearly always in a state of agitation, pacing the floor restlessly and recalling the loss of her mother as the greatest disaster in her life and weeping bitterly during every conversation. She said she was convinced she would not recover. At other times she spoke in a mournful tone without being able to give the exact cause of her depression.

Physical examination was entirely negative, except for a pulse of 100 and the condition of her teeth. Heart was of normal size and without pathologic sound. The stool when examined proved normal, except for slight evidence of catarrhal colitis. Blood examination showed hemoglobin 78 per cent.; red blood-cells, 4,869,000; white blood-cells, 6,500; differential showed mild increase in the lymphocytes; the urine was normal. A test breakfast showed diminution in the hydrochloric acid content. A serum Wassermann was negative, and the spinal fluid was normal in every respect.

After a week of tonic measures without noticeable improvement it was decided to subject the patient to the ordeal of having her dental condition improved. A roentgenogram of the jaw showed two abscessed roots under crowned teeth and a collection of pus beneath a faulty bridge.

The bridge-work was removed and abscesses drained. During the following week the cloud began to lift, and she began to have moments of better humor and saw some possibility of looking at the brighter side of things. The patient was then sent to the country for two weeks from which she returned in a comparatively happy state of mind. She arranged to take some hydrotherapy treatment at the hospital, but a few days later decided to go visiting instead.

The message of this paper is that the obvious is too often disregarded in searching for some profound cause. The discovery of a purulent process similar to that frequently seen in the mouth in other regions of the body would be sufficient ground for the hasty summons of the surgeon. A full appreciation of the possible dangers from infection around the teeth should lead us into council with the dentist. This is in no sense a criticism of the dental profession, but rather a plea for the closer cooperation of the medical man and the dentist. After an expert dentist has properly cleaned up alveolar pyorrhea or abscess, we find vaccines, as a usual thing, unnecessary.

37 West Fifty-Fourth Street.

ABSTRACT OF DISCUSSION OF SYMPOSIUM ON MOUTH INFECTIONS

Dr. Arthur D. Black, Chicago: One phase of this subject, of interest to both dentist and physician, which has not received the consideration that it should, concerns the pathologic changes that take place in the tissues which are involved in the establishment of these foci in the mouth. We have in the mouth two groups of chronic foci, the chronic alveolar abscess and the so-called pyorrhea pocket, both of which involve a single tissue—the peridental membrane—which is the important factor in establishing the chronicity of both groups of cases. As a result of the involvement of the peridental membrane, either at the apex of the root or beginning at the gingival margin, there is a suppurative destruction of the attachment of the tissue, to the cementum covering the root of the tooth. As a part of this process the cementoblasts, which overlie the surface of the cementum within the peridental membrane, are also destroyed. These are the only cells which could cause reattachment of that tissue. Soon after detachment, the fibers of the peridental membrane, which passed from the cementum of the detached area to the bone, disappear, and a little later the bone to which they were attached is absorbed. Thus all of the specialized elements necessary to the connection of root with bone are lost, and we cannot have reattachment of this tissue to the cementum of the root. This is shown very clearly by the roentgenogram in both groups of cases. Careful examination of these will show a line down the side of and close against the root, which is practically always in advance of destruction of the tissue elsewhere, showing clearly that this disease has begun at the junction of the peridental membrane and the cementum. There is a progressive involvement of peridental membrane and bone, making the whole area about a given tooth funnel-shaped. Within the past few years I have cut away the tissue forming these pockets from the roots of teeth for microscopic examination. In one case I removed the tooth, peridental membrane and a section of the alveolar process and overlying gum tissue all in one piece, and had sections made for study. These sections show that the above mentioned changes take place and that detachments are permanent. Therefore pockets remain about such teeth and the overlying tissue is subject to frequent reinfection. We should not, therefore, expect vaccines to have any more than temporary effect on the local focus, because we have a condition here in which the physiologic possibility of repair is gone. The dental treatment indicated is the elimination of the focus in the case of the alveolar abscess by resecting the denuded root end, or the extraction of the tooth. If it is a pocket alongside the root, exposed to the fluids of the mouth, the tooth must be extracted, or palliative treatment employed which will be effective against reinfections.

Dr. M. I. Schamberg, New York: Dr. Billings gave a clear and concise description of the mode by which infections of the mouth reach these parts, and I was disappointed that he did not, even cursorily, touch on the possibility of a septic endocarditis, and likewise of producing secondary infections about the body other than those that apply to arthritis deformans. I, with many others, have been observing these conditions for a number of years. Our findings have been largely clinical up to within possibly a year or two, since which time, through the cooperation of the laboratory and the medical diagnostician and interns, we have been able conclusively to prove that the mouth is a prolific source of primary infection, bringing about serious sequellae. It is equally important that we remember that the absence in the roentgenogram of the dark area is not essential to the conviction of a particular tooth as the cause of these secondary troubles. Only recently in a case in which we were anxious to find the bacterium producing the effect on the patient's general health, a tooth was removed which showed an incomplete root-canal filling with no apical disturbance whatever. On crushing off, under aseptic conditions, the tip of this tooth, from the putrescent material in the apical end of the canal we were able to grow a pure culture of *Streptococcus viridans*. Likewise, in a case of rheumatoid arthritis of fourteen years standing, the patient, who was unable to walk, was brought in with a history of a thorough survey of the mouth for any possible etiologic factor in that region. I finally found among the few remaining teeth a tooth that had been comfortable through all these years, but the roentgenogram showed a slight area about the end. We removed the tooth and from it produced a pure culture of *Streptococcus viridans*. In this case the history of the work done on the teeth recorded that it had been treated some sixteen years previously, which was two years prior to the

Another young man had gone six weeks with serious symptoms of general infection represented by chills and fevers, serious suggestion of malarial fever, but a diagnosis was made of septic endocarditis. It was impossible to find any indication or ordinary physical manifestation. We looked thoroughly for the focus of infection but found nothing except that in the throat the tonsils seemed to be unhealthy. I suggested that a throat specialist be consulted. The specialist discovered an abscess. The cavity was irrigated and the temperature went to normal in twenty-four hours; the patient had no further chills or fever and finally recovered. It has been my privilege occasionally to see lesions about the mouth which did not respond to treatment, in which cases the Wassermann test proved positive and the patient, put on salvarsan, recovered.

These cases illustrate the opinion, I think, that the mouth furnishes a large proportion of infection which we overlook. We in general practice find a large proportion of people who never saw a tooth brush; who do not know anything about the care of the mouth. If these cases were considered by the physician with reference to inspection of the mouth more generally, more patients would be referred to the dentist and have carried out mouth sanitation in the proper way.

Dr. Henry W. Frauenthal, New York: We have made it a routine practice by means of a dentist connected with the institution to have all the teeth examined, and it has been remarkable to see how many chronic joint conditions are benefited by cleaning the teeth. I think one of the most common sources of infection has been in poorly built bridges and caps, work done indifferently, in cases in which infection existed. On removing the caps we find infection existing. A number of these cases have been shown in the New York Dental Clinic. A patient on my service had been treated for rheumatism in several institutions previous to admission to the hospital without any benefit whatever. Her pain was so acute that she attempted to commit suicide twice, having been informed that her condition was chronic, and would never improve, but on the contrary, would gradually grow worse. Owing to the condition of her gums, I made a diagnosis of joint condition due to septic pyorrhea alveolaris and with no other treatment but the correction of the mouth infection, as done by Dr. Harry A. Goldberg, an arthritis involving both knees, left ankle, right wrist and elbow, cleared up in ten days, and at the end of three weeks the patient was discharged cured. Her temperature varied from 98 to 102 F., with a corresponding pulse. This condition extending over a period of nine months, responded to treatment in ten days.

Dr. T. W. Corwin, Newark, N. J.: In regard to the search for the foci of infection, two points may be of interest. For instance, the appearance of the tonsils may be quite normal, but if the routine practice is adopted of making pressure on the tonsils with some instrument, frequently one will find an exudation from the crypts of matter which may be worth while investigating. Another simple procedure that I believe will prove valuable in many cases, and especially those in which there is a manifestation of anemia, is, whether it is necessary to make an observation of the temperature or not, to put the clinical thermometer under the tongue; before reading the temperature, if you will pass the end of the thermometer under your nose, frequently you will discover a fetid smell. Perhaps these two little points may be of assistance when searching for the focus of infection.

Dr. W. H. Mercur, Pittsburgh: I read a paper not long ago by Dr. Morris Manges of New York on the "Mouth as a Means of Diagnosis." I have met but few men who have read it; it is certainly most appropriate to the present discussion. In this article he shows how easy it is to examine the mouth and how hard it is to examine the stomach and other organs that we give so much attention to. In this article I think he speaks of eighteen different diseases which can be absolutely diagnosed from inspection of the mouth alone.

Dr. J. A. Pettit, Portland, Ore.: I have put on record a number of cases which have come through our service, illustrative of the salient points brought out here. Many of us have had experiences in this connection, which are similar in the gross, but vary in minor details. We are undoubtedly entering on a new era of therapeutics, medically as well as surgically. This subject is undoubtedly in the early stage of development; what the next few years will bring forth is hard to tell. Instead of bending our efforts to the relief of the ravages of infection, we are searching for the sources of infection and reaching out with the use of vaccines and other remedies to overcome them. This is the broad field of therapeutics of the coming day. Preventive medicine is gradually extending out and overshadowing the former field of materia medica and drug therapeutics. Heretofore, remedies have been applied for the relief of conditions which we are now able to prevent. In the face of all the admirable and life-saving work done by medical research and study, it is disgusting to be compelled to listen in dignified silence to the malevolence of ignorance displayed by various cults, and at the same time observe them taking advantage of the very life-saving procedures which the medical profession has discovered and devised.

Dr. Frank Billings, Chicago: In my address I did not go into the details of every variety of disease that seems to be related to focal infection, but rather tried to give the principles of it. I think we should not use the word "cause" too much in relation to the focus of infection of a systemic disease. We should not, even with the focus before us, say that that focus is the absolute cause. I think we will have to use the expression that it is the predominating etiologic factor because there are so many other factors to be taken into account. None of us, it does not matter what our position in the profession may be, is capable of passing judgment on all things, and for that reason we have at the Rush Medical College clinic endeavored to encourage what we call team-work. I, myself, never pass on a special infection except when it is related to something that I think I am a better judge of than the other men. For instance, Dr. Moorehead is asked to pass judgment on the mouth, so far as the jaws are concerned, and I make him responsible. The best men in their lines, men who are teachers in the college, I ask to give judgment about an infection of the sinus or tonsil. Sometimes we call surgeons in with reference to some infection in the abdomen or elsewhere that I think may add to my own knowledge of the condition before we proceed to do anything. I do not pretend to-day to carry out the technic in bacteriology. We have such men as Drs. Rosenow, D. J. Davis, H. K. Nicoll, Gaarde and other bacteriologists, working at the problems. We must all get together. The oral surgeon has no right to diagnose a systemic condition of the patient and say outright that the mouth is related to it; he should have the family physician cooperating with him before he reaches that point. Nor should the family physician nor the one having general management of the patient order teeth out without the definite advice of the oral surgeon who is capable of giving it. I believe there is much in that principle that there is a focus of infection that is the predominating factor in many systemic diseases. This is perhaps expressed more commonly in arthritis of the chronic type than in any other disease that we can mention, but it is in many. Besides arthritis, we have traced this same hematogenous infection with its embolic occlusion of the end artery as the cause of cholecystitis. Hyperplasia in the thyroid gland, which occurs commonly in rheumatism, is associated with infection of the tonsils. The hyperplasia disappears with all of the clinical phenomena with the cessation of the tonsillitis. Also in hemorrhagic nephritis, the streptococcus obtained from that producing tonsillitis, causes hemorrhagic nephritis in the animal, etc. So that the application of the principle is much wider than the average practitioner thinks.

Dr. Thomas Gilmer, Chicago: To find the cause of a condition and locate its origin is all-important, but we must go further back than this. Infections in the mouth are due, in the great majority of cases, to improper hygiene. We all recognize the uncleanly condition found in nine-tenths of the mouths which come under our professional care, although the patient may be otherwise scrupulously clean. I venture to say that if we should examine the mouths of the physicians in attendance in the various sections here to-day, few would be found clean, or even approximating a hygienic condition. It is well to cure our patients when they become diseased, but it is far better to prevent disease by teaching the people the importance of the care of their mouths, that they may not suffer from disease primarily brought about by lack of care of the teeth. Dr. Blair asked if I considered it important to curet and disinfect bone cavities after the removal of a tooth with a septic apex. As a rule I should answer in the negative. The curettement depends, of course, on the stage of the infection and the area involved. Chronic abscesses may be profitably curetted in some cases, but in the acute cases it should never be done. In acute cases I am doubtful about the use of antiseptics. I think it would be just as well to use simply a normal salt solution. Antiseptics, if strong enough to destroy bacteria, would prove detrimental to the tissues; besides we cannot penetrate the tissues with an antiseptic so far as the bacteria have gone. Is it not true that by curettement we cause a greater traumatism which renders the tissues more liable to greater infection?

SOME IMPORTANT PHASES OF RAILWAY SANITATION *

A. E. CAMPBELL, M.D.
Health Officer Illinois Central Railroad
CHICAGO

The steamship and the railway are making the world one country. Produce is now carried from Australia to England, a distance of 11,000 miles, at less cost than was required a hundred years ago to carry goods from one end of the British Isles to the other. The construction of our transcontinental railway systems soon after our Civil War, the projection of great railway systems in Russia and continental Europe in 1873, the opening of the Suez canal in 1869 and the Panama canal in 1914, made all civilized nations near neighbors.

There were carried on the Great lakes last year 7,000,000 people. The Chicago City Railway handles 3,000,000 persons each day. The suburban lines of Chicago handled 44,347,680 persons in the year 1913. The Illinois Central Railroad handles on an average 40,757 persons on her suburban lines each day, or 14,876,300 persons each year. This requires a vast amount of care and responsibility. The railroads leaving Chicago each employ from 45,000 to 74,000 people and the care and working conditions of this army of men should be supervised by an intelligent man. He should have supervision over the ventilation of trains, the condition of the diners, the cleanliness of the depots and toilets, as well as the ventilation of waiting-rooms, the condition of all eating-houses along the line, the condition of shops and yard-offices, repair tracks, construction crews and a hundred other duties which are sure to come before him. I can assure all railroads that such a man will have all he can attend to and will be well worth what he costs many times over.

THE TRAIN

The ventilation of trains or at least of the day coach is not a difficult problem if one or two points are kept in mind. A train rushing against a strong wind causes the air to pass through a train horizontally—hence, if there are openings in the end of the coach the air will pass through, as I have repeatedly proved. All end doors of all coaches should therefore have adjustable sash and the sash in the rear door should always be open. Every coach should have a thermometer and the temperature should be kept at a certain figure. The steel coach is coming more and more into use on account of its safety, and in the South this coach becomes very hot. I have found that the temperature in the center of this coach is from 2 to 4 degrees higher than in the ends and as the electric fans are in the ends they are cooling the part of the coach that is cooler anyway. There should be two oscillating fans in the center of the coach, but if four fans consume too much electricity, three English paddle fans should be installed 15 feet apart. This will distribute the air more evenly.

Spitting on trains is so reprehensible that I believe a slip should be issued by all railroads and used in the state through which they run as follows: "In view of the authority vested in the State Board of Health you are liable to a fine of $25 for spitting, sneezing or coughing on trains without taking the precautions mentioned on this slip." On the back of the slip instructions should be given where to spit and how to cough and sneeze with the handkerchief before the face. Railroads do not like to displease their patrons and state boards should assist and issue these in the name and by the authority of the state board and thus help to stop this disgusting practice on trains.

All coaches should have separate apartments for water and ice. I see ice handled so carelessly—slid along a platform over tobacco spit and other unmentionable filth, laborers taking up the ice with their bare hands and dumping it into the drinking-water—that I have very firm convictions on this point. I do not believe it is wise to have ice in the water in our dining service, mainly because of the methods of handling the ice. Then, again, this ice is handled by a cheap class of laborers who are not overly clean and tidy and I hope all railroads will abandon the placing of ice in the drinking water on trains or on diners.

There should be a folding washbowl near the pantry in all diners, but I strongly object to a toilet in a diner, as no person would care to have odor from a toilet come to his nostrils while eating. All waiters should be instructed to wash their hands before serving food and this would be a good rule to follow in all railroad lunch rooms. It is not very appetizing to see a waitress fix her hair and pick her nose and then without washing her hands hand a piece of pie or come with her finger in the glass of milk. It is because these very matters have come under my observation that I speak of them.

The carriage of tuberculous people on trains has caused much comment and in some states attempts at legislation. We cannot deny that there is a degree of danger, but no more than from many other diseases. There is no denying the fact that diseases are transmitted from person to person and usually can be traced to excretions thrown off from the infected mouth and nose. Indeed we are all more or less exposed to this wide-spread infection at some time or other in our lives. From the best authority we can find we fail to gather information that a person traveling on a train or steamboat reasonably well ventilated would contract consumption, even though there is consumption among his fellow passengers. There is absolutely no evidence proving such incidence of infection. Yet there may be individual cases which may point to such a possibility; but they do not prove it. Other evidence, however, leads us to suspect that the journey on the passenger coach has little or nothing to do with it. The chief physician of a great sanitarium for tuberculosis told me that it would be impossible for the common carrier to segregate those cases, as there were thousands seemingly well or healthy individuals who excrete tubercle bacilli in abundance. Indeed, I believe it would be well for common carriers to have literature on tuberculosis, or it might be well for state boards to have literature telling how the tuberculous patient should behave to protect himself and the public. For instance, the following rules might be circulated.

---

* Read before the Section on Preventive Medicine and Public Health at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

INSTRUCTIONS TO TUBERCULOUS PATIENTS

The tuberculous patient must consider his own welfare as well as the welfare of those about him.

1. He should be in the fresh air as much as possible night and day.
2. He should be cheerful, look on the bright side of life.
3. He should eat only nourishing food—meat, vegetables, bread, buttermilk, cream, eggs.
4. He should avoid style, dress to suit the changes in the weather, always carry an overcoat and two or three handkerchiefs.
5. He should keep his nose, mouth and hands clean.
6. He should take at least nine hours of sleep at night, and if possible a nap in the afternoon.

SOME THINGS THE TUBERCULOUS PATIENT SHOULD NOT DO

1. He should not mingle in large crowds of people or be where there is dust or smoke.
2. He should not take tobacco or alcohol in any form.
3. He should not cough needlessly, but only when he feels he must expectorate.
4. He should not work when feeling ill.
5. He should never swallow his sputum, as it may cause tuberculosis of the bowels.

SOME THINGS THE TUBERCULOUS PATIENT SHOULD NOT DO, FOR THE WELFARE OF OTHERS

1. He should not spit anywhere except in vessels for that purpose or in paper napkins, which should always be burned.
2. He should not cough or sneeze without covering mouth and nose with handkerchief.
3. He should not kiss any person.
4. He should not eat or drink from dishes that may be used by others.
5. He should not sleep in the same bed with another person.
6. If riding on a train he should always take a state room or a berth in the rear end of the car and have cuspidors and paper near him and expectorate only in them.

I believe something like this should be carried by all common carriers and I feel confident state boards could aid common carriers very materially by having something like this in such public places as the waiting-rooms of depots, etc. It would be well for state boards to distribute some literature to this class so that if they travel they can be informed of the precautions they are expected to take.

Tipping on trains and on Pullman sleepers has gone so far that it has become a menace to the traveling public. There are many hotels and many more restaurants which forbid tipping. One of the leading hotels in St. Louis prohibits tipping. The McKinley electric lines through Illinois prohibit tipping on all their trains and it is time for all railroads and the Pullman people to get away from it. It is undignified and un-American and the quicker we stamp it out of this country the more we will dignify ourselves in the eyes of foreign nations.

I quote from the Washington *Post* to the effect that a young man paid three thousand dollars a year to his employer and hired several clerks and became rich in a short time. This shows how insidious a vice this is becoming. Not a man who is a member of any organization but condemns this vicious practice in the strongest terms, and railroads and the Pullman companies as well as all other corporations should bid adieu to this undignified practice.

The "butcher" or fruit vender on trains, with dirty hands and dirty linen, is a nuisance to many passengers and I believe often disseminates disease. One of our surgeons told me of a fruit vender he was treating for a specific disease, who came from the toilet room without washing his hands, handled and sold fruit to a woman with a young child. In the course of a few days the child was brought to the surgeon with a very sore eye which proved to be a gonorrheal ophthalmia. Not only should fruit venders be urged to wash their hands and keep clean but they should be examined regularly as well as all dining-car employees.

THE TRACK

There is much agitation over track pollution by interstate carriers and although I have watched for the number using the toilet I was unable to determine how much fecal matter was discharged. I therefore selected the part of our road having the heaviest travel through the central part of Illinois. Starting at Centralia at 9 a. m., with buckets under all hoppers and traveling 275 miles with 564 passengers there were three bowel movements and much urine. Returning at 10:30 a. m., the same distance, with 645 passengers there were but two bowel movements and much urine. Next, the train from Chicago to St. Louis was taken. This train leaving at 10:05 a. m. with 193 passengers, arrived at St. Louis at 6:45 p. m. There were no bowel movements but much urine. Returning, a distance of 300 miles with 394 passengers, arriving in Chicago in eight hours, there were no bowel movements and very little urine. There is no doubt but there is much urine thrown off, but the constant jarring of the coaches inhibits the peristaltic action of the bowels in the vast majority of traveling people. The secretary of one of the boards of the Northwest told me that he has traveled from Winnipeg to New York and return without a bowel movement. Urine as it leaves the body is said to be aseptic and providing typhoid germs are thus thrown off, sand or gravel is not the soil in which they can long survive, and there must be a relation between the seed and the soil. It is not wholly the one or the other with which we have to deal as practical men. It is the combination and the interaction between the two. I have also made a careful inspection of our main track over which our through trains pass between the hours of 9 and 12—the hours when bowel movements are most likely to occur. In company sometimes with state or city health officers and railway officials we failed to find any evidence of human excrement and the railroad official explained that the constant fanning of the long freight and passenger trains dried out all human excrement. We did see an unusual amount of cattle manure, however, and as it is said that cow manure contains the colon bacilli, this matter should be seriously considered, for cattle are just as likely to drop their excrement directly into the water. It is no more dangerous for cattle to drop this on the track than beyond the fence by the right of way, but from an esthetic point of view it would be well for railroads to prevent as far as possible the dropping of this occasional movement on the sidewalks of cities and villages and I believe a false trap could be attached to the bottom of all hoppers or there could be a lock put on the flush bar or handle so that this could be flushed at points where there was no danger of sidewalk pollution. I am very sure this can be done. At some points where our sleepers stand over night there should be a bucket under all hoppers and the toilets left unlocked for the convenience of the passengers. Cattle pens along the line should be kept clean and whitewashed.

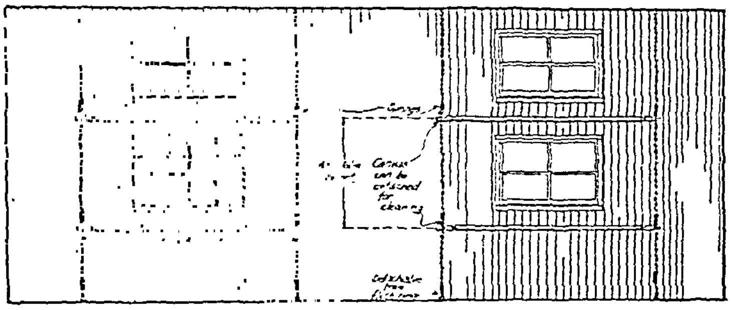


Fig. 1.—Elevation of interior side of box car showing arrangement of sanitary canvas beds.

CONSTRUCTION AND SURVEYING CREWS

I have on two former occasions called attention to this class of work and it seems that very few railroads and scarcely any state boards in this country have taken cognizance of this important part of sanitary work. When I called attention to this phase of the work—three hundred men throwing their excretions everywhere along the track while at work—I was curtly asked if three hundred was any worse than sixty passengers dropping their excretions on the right of way, when in reality not four persons drop their excretions in a journey of 300 miles. I have seen so much of this that I again call attention to it and have laid down some rules that should be followed. I have also designated the equipment that all camp cars should carry, as I often find them with no lime, no kerosene, nothing to destroy bedbugs or body-lice. Often small-pox breaks out among this class of laborers. Often gonorrhea is prevalent and it is important that separate towels should be provided for the men. I strongly recommend that these instructions be given to those in charge of camp cars:

INSTRUCTIONS TO BE GIVEN TO THOSE IN CHARGE OF CAMP CARS

1. See that all cars are properly screened and ventilated.
2. See that all cars have the following equipment: a portable toilet; a barrel of lime; one-half barrel of powdered sabadilla; 5 gallons of kerosene; one covered garbage can; 50 pounds of sal soda; one 14-inch rattan scrub broom; soft soap; wash pans; towels and a fly-swatter for each car, and 1,000 3-grain quinin capsules. Vaccinate all men.
3. Assign a man three hours each day to scrub kitchen and dining-room, and all sleeping-rooms every other day, to air all bedding, to ventilate all sleeping-rooms, scrub and lime all closets, and to see that fresh water is provided for all the workingmen. If in a low marshy region 3 grains of quinin shou.d be given twice daily.
4. See that but eight men are assigned to a car and that all cars have sanitary beds.
5. See that all garbage is destroyed or gotten rid of each day.
6. When building a privy dig a vault 5 feet deep and 2 feet wide and as long as needed, then put 6 inches of unslacked lime in the bottom and cover deposits daily with lime.

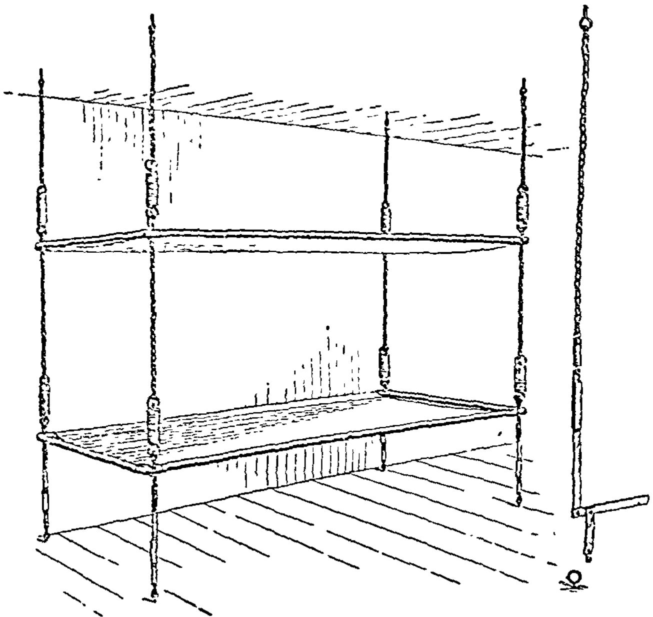


Fig. 2.—Sanitary canvas beds. Our company installed a large number of these beds in all our camp cars. They can be taken down and sunned and aired; combine simplicity with cleanliness; the canvas can be easily removed and washed.

The privy vault at small railway stations is a necessity and if it has fallen into disrepute it is because of neglect. I am confident that it is far superior to Stiles' bucket as it is much easier to cover the excretions in a vault already made than to make a vault and then cover it afer carrying this offensive mass for some distance. Dr. Smith in his *Air and Rain*, says:

> If soil affects the atmosphere how does it happen that it is such an excellent disinfectant? Substances are purified in the air to the same extent, and in the same time as in the soil. The great amount of surface presented by the porous soil is *mainly the cause of the rapid reaction, but the acid humates* and probably other substances act chemically. There are modes of oxidizing in the air beyond the power of ordinary oxygen; one of these is by means of nitrogen oxids and another by ozone. But even these require great time and space. If we throw sulphureted hydrogen water or its compound with ammonia on a few inches of soil it passes through, oxidized in a few minutes. We can obtain such *action in the air only in great volume* although in the end the work done may be better for its purpose. It is, however, possible to overload even the porous soils which oxidize the most rapidly; that is, it is possible in a given case to have more organic matter than admits of oxidation in a certain time and putrefaction is the first result.

Now if soil is used freely, say three times as much soil as excreta, this putrefaction will soon disappear and, indeed, may be prevented as I have repeatedly demonstrated. The plan we have adopted and which I can recommend is to dig a vault 5 feet deep, then put 6 inches of pure unslacked chlorid of lime in the bottom. Save *all the earth* removed from the vault and add this each day or twice a week, and when the vault is full use this as a fertilizer. There will *not* be a particle of odor and except a few streaks through the soil one could not tell it from the ordinary soil. I have had section men dig down over a privy vault three months or more after it was abandoned and we could not tell it from ordinary soil. This, however, was exposed to heavy rains. If this soil is used as fertilizer it should not be used in gardens for one year at least.

The care of the excreta of fifty men at our shops and small terminals where there is no sewerage is another matter, however, and I am using an incinerator, and in some places where there is a pump engine boiler the excreta can easily be burnt in this. If not, then a castaway engine grate can be used by having it raised 12 inches from the ground, building a hot fire under it, throwing kindling wet with kerosene on this grate and adding the excreta and some tar to keep down odor. It is surprising how effectually tar will keep down odor. I have also used creosoted pile heads, which keep down odor very well. This is a method which all railroads can easily use and should use as a safe measure. There are always a lot of odds and ends to be burned at all shops and these could be used at this time.

We have a great amount of trouble at our stations by having our toilets abused by people who are not patrons of the railroad. If state boards and the public health service could insist that all municipalities have public toilets as they should, railroads would not have so much trouble with theirs. We often get notice from a health officer that we must install a privy at a certain place when it is used almost exclusively by citizens of the town who never patronize the road. Why should not these public officials get after municipalities which have such an army of worthless people to provide toilets for them? Other countries have them and state boards should insist that all large municipalities have public toilets.

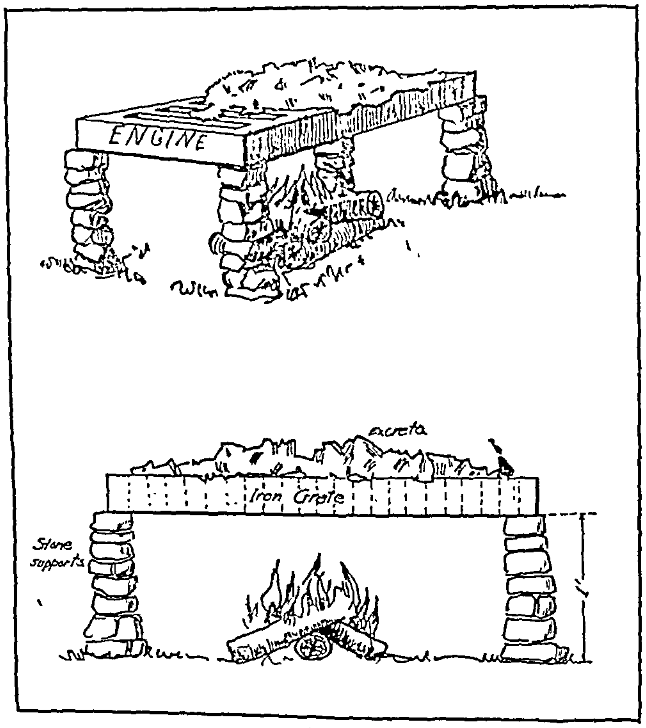


Fig. 3.—A method of disposing of excreta by incineration.

THE SHOPS

When the railroad shops are built in a swamp, as they usually are, proper drainage should be provided and drinking-water looked for at once. This drinking-water should not be taken from the tank, as I have frequently found, until the source of such water is ascertained. There should be ventilators over the forges in the blacksmith shop and the master mechanic's office should be so located that smoke and gas from the engines would not come near it. Indeed, all general offices should be so located that gas and smoke would not be offensive. I have firm convictions on this point. It would seem more accurate and perhaps wiser to deal with the human being as if he were a machine, with his efficiency as measured by his output, and endeavor to find what the conditions are which lower his efficiency. Sir Thomas Oliver in his masterly address on "Dust and Fumes, Foes of Industrial Life," pointed out the human and economic aspect of the work in which we are engaged. Indeed, it is estimated that nearly 70,000 wage-earners perish every year from industrial tuberculosis and that by factory inspection and effective methods for the prevention and removal of dust and gas fully one-half of these lives could be saved. This is not speculative, and abundant evidence can be produced that gas and smoke and fumes of gas are detrimental to the public health as well as lowering to the efficiency—either impairing it temporarily or tending to impair it permanently. I can also testify to the fact that this gas from engines prevents the proper ventilation of offices, and since such statements are true I urge all railroads to have their offices in the country. Our company has 50 acres 15 miles from Central Station and why would it not be wise to build offices at this place with outside porches, swimming pool, abundant shower-baths and a large park for general games at the noon hour? Not a man reading these lines but will say that such a step would increase the efficiency of the working force and be a credit to the management.

Noise would also be avoided; indeed, the blowing of whistles and constant ringing of bells when the train is standing still is a nuisance and is prohibited by many municipalities. M. Emile Gautier declares Paris is becomming uninhabitable because of noise. Every pulsation and noise, he explains, causes nervous shock, comparable to a blow with a hammer, and is felt throughout the entire cerebral mass. These shocks are liable to cause or to create serious trouble. Experts who have studied the noises of Paris and their effects on the nerves and brain matter are convinced that the modern malady of neurasthenia is directly attributable to the riot of sounds by which we are daily assailed. No other explanation is needed for the growing number of nervous disorders. The pledge given Mrs. Rice by a little child in her campaign against unnecessary noise is wise and should be practiced by all trainmen—"I promise not to play near or around a hospital, when I do pass I will keep my mouth shut tight, because there are many invalids there, nor will I make myself a perfect nuisance."

ABSTRACT OF DISCUSSION

Dr. A. M. Harvey, Chicago: Certain corporations have had medical health departments for over a quarter of a century, and the appointment of such an officer is becoming quite universal among the large corporations. About a month ago in an investigation among the larger industries of the United States, I received something like thirty replies to my inquiry which covered several questions: "Do you maintain a health department?" "Do you examine men physically?" "If you do maintain a health department, is it in control of a physician, and what voice does he have in the management?" Of the replies received from corporations that were fairly representative of the industries in our country, and probably employed several hundreds of thousands of men, about 70 per cent. of the answers showed that they examined, physically, all applicants for work before employing them. That simply indicates the interest that corporations as employers of labor are taking in the health problem. The importance of medical supervision of health in industry is also emphasized by recent legislation in several states whereby it is made mandatory in certain trades and occupations, and by sanitary regulations imposed on employers in general. Among the advantages claimed for corporate or private medical health departments are: 1. Safeguarding the health of employees from the dangers of those seeking employment who may be afflicted with dangerous or infectious diseases. 2. The assurance of a fairly good working force from the beginning, by the physical examination of applicants. 3. Affording employees opportunity for early consultation, before an ailment has become established, thereby giving them the best chance for a cure. Employees are prohibited from returning to work before convalescence is well advanced, thus insuring a permanent cure. Employees in hazardous positions by reason of physical infirmities are placed in positions of security. Loss of time on account of sickness is lessened. Sanitary conditions of shops and offices, and favorable working conditions and environments are insured by personal inspection by sanitary experts. Prevention of disease, like the prevention of accidents, insures a more efficient working force. The health department in a corporation increases the efficiency and earning power of the men. Judged by the great amount of money that has been expended in this direction by several large corporations, notably the Crane Company, the International Harvester, and the United States Steel and their subsidiary corporations, the health department pays; and the housing and living conditions have also been improved. A wonderful change can be brought about by a health officer who has the confidence of the corporations; but much yet must be done. The great work at present is to improve the living and housing conditions of the employees.

Dr. J. W. Kerr, Washington, D. C.: Dr. Campbell mentions a number of problems that are of interest to the traveling public. The term "car sanitation" is somewhat indefinite. It must, of necessity, include more than the sanitation of the cars, just as industrial hygiene must include more than sanitation of shops; for instance, the economic and sanitary conditions in the homes of laborers. It is important for us to approach these problems without prejudice. From the point of view of comfort and convenience, generally, the railroads of our country are in advance of the people who travel on them. I had occasion, recently, to compare the sanitation of our cars with those of foreign countries. A standing order in the Treasury Department requires any medical officer of the Public Health Service who travels under official orders, as soon as he returns to his station, to submit a report on the sanitary condition of the trains occupied. This report is immediately forwarded to the Secretary of the Treasury, and is then returned to the Bureau, and any criticism contained in the report is brought to the attention of the railroad company, if it is severe enough to warrant such action. Under this order I made an inspection of a train on the Baltimore and Ohio Railroad, running from Washington to New York. Like inspections were made in Europe of trains operated over state and privately owned railroads. On the American train there were no common towels, and liquid soap was furnished in every car. The toilets were clean, and locked up while crossing waterways. In other respects this train was in good sanitary condition, and the railroad stations at both terminals were also in good condition. Many of the trains occupied on the continent, on the other hand, with the exception of the train from Cherbourg to Paris, were abominable; and some of them were state-owned, state-operated roads. This experience is cited as evidence that the railroad companies of America are trying to meet reasonable requests of the traveling public, and they are approaching these problems from a practical point of view. I think they want to improve conditions. One of the subjects needing careful study is the influence on health of gases in tunnels. Within the year a number of samples of gases have been collected by the Public Health Service from tunnels used by coal-burning engines and electrically operated engines, respectively. The results of the analyses have been tabulated and are now in press. Studies are also being continued, of the extent of the migration of tuberculous persons in interstate traffic. There are about five or six areas to which tuberculous persons from all sections of the country travel for changes of climate. We know nothing, however, of the volume of this travel; and we know very little of its effect on the public health. The regulation of it is difficult; and for that reason probably has not been as fully studied as it ought to be.

Dr. John W. S. McCullough, Toronto, Ont.: Railway sanitation is a serious problem in our country because railway construction is active there. Dr. Campbell referred, however, to other carriers; and that allows me to speak of the pollution of the waters of the Great Lakes separating Canada from the United States. Last year, at the instance of the international joint commission, our board of health, in conjunction with the United States Public Health Service and some state boards of health bordering on these waters, made an extensive examination of the waters of the Great Lakes and connecting rivers. This investigation, which lasted from April to November and is perhaps the largest undertaking of a similar character ever completed by any of the countries of the world, demonstrated that while the lakes themselves are practically pure, the connecting rivers and portions of these lakes are dangerous to those who travel on them. When the enormous commercial and passenger traffic on the Great Lakes is recollected and also that the incidence of typhoid fever in the towns on the Great Lakes is the largest found in any part of these countries the dangers to the traveling public on these lakes is of deep concern. It was demonstrated that St. Mary's River, St. Clair, Detroit, Niagara and St. Lawrence rivers were badly polluted; in fact, there are portions of the Detroit River which are so polluted as to be unfit for use after the most careful purification. None of the water of the St. Clair, St. Mary's, Niagara or Detroit rivers is fit for use without purification. From the mouth of the Niagara River the pollution is carried out into Lake Ontario for a distance of from 10 to 16 miles. Lake Ontario, in the line of boat traffic from Niagara to Toronto, is only 30 miles wide, hence this pollution travels across the international boundary; and in the line of this large traffic it is impossible to secure a pure supply of water for these boats without taking it from some source other than from the lake itself. I hope all will study this report and the significance of this boat pollution of the international waters on our traveling public. We have required a great many Canadian steamboats to take their water-supply from the middle of the lake in large tanks, and also to treat it by means of calcium hypochlorite.

Dr. G. H. Sumner, Des Moines, Iowa: Dr. Campbell has given us some excellent plans for the railroads to follow; but, on the other hand, it seems to me that state boards can give the public some instruction relative to the way that they should travel. Education is nothing more nor less than a bundle of habits; and Dr. Hurty has well said that you cannot hope to redeem the adult, but you may train the child. Therefore, it seems to me, that we should issue short tracts of instruction to the public relative to their habits in travel. I rode on a Chicago Great Western train not long ago. The car was filled with people and the ventilation was poor. In one portion of the car was a woman and several children. I won't attempt to describe the condition of those children, but the odors in that car were extremely unbearable. Two train officials, complained to concerning the bad air conditions, failed to perceive any need for increased ventilation. When I reached Des Moines I reported the occurrence to the railroad commissioners and received a courteous letter from them. I believe, with Dr. Hurty, we had better begin again to teach the younger generation how to keep clean, and then to help the railroad companies in their efforts to better the conditions of travel.

Dr. W. H. Sanders, Montgomery, Ala.: Dr. Campbell is undoubtedly doing a great work in his field; and I am glad to say that the corporations very generally are upholding work of this kind. One of the largest corporations in the country, with its headquarters in my state (Alabama), has within the last two years organized quite as systematic a medical force for the purpose of looking after the health conditions prevailing among their employees as may be found in any of our states; and from visits to the grounds occupied by this corporation I see very great improvement. This work will spread among the corporations all over the country. Dr. Campbell's paper should be sent to all of the large corporations in the country. I want to emphasize that the people need educating on sanitary lines as much as the managers of corporations. In formulating rules applying to railroad sanitation in my state I have made them applicable to the traveling public quite as much as to the employees. If people traveling on trains are ignorant of what is reasonably decent and clean, they ought to be required to learn.

Dr. Charles C. Browning, Los Angeles, Cal.: Some work has just been completed by Surgeon Carrington of the U. S. Public Health Service in California south of San Francisco and in Arizona, concerning the influence of the movement of tuberculous patients on themselves and the traveling public. A great deal said with regard to the danger from the tuberculous patient doubtless is true; much is founded on sentiment and not on scientific data. Surgeon Carrington has spent several years in the Southwest and has been doing very thorough work in our particular section. I presume that the report will be available through the Department of Public Health.

Dr. W. C. Rucker, Washington, D. C.: The question of railway sanitation is a question of sanitation. When you have said that, you have said all. The sanitation of a vehicle is not different from the sanitation of a house. It is merely that of a house on wheels. The attempt to surround railway sanitation with something mysterious, something which stands off by itself, is wrong. The attempt to make the railroad companies and the other transportation interests of this country the goat whenever it comes to anything sanitary is equally wrong. In enforcing the interstate quarantine regulations I have dealt with a large number of railroads; and there has never been an order, a suggestion or a comment made to those common carriers by the U. S. Public Health Service which has not been acted on favorably and immediately. The railway companies, as has been said, in their sanitary methods are in advance of the people living along the right of way. Furthermore, when they are asked to furnish an example to people living along the right of way, they are invariably willing so to do. I do not believe that much education is necessary with regard to the railway interests of this country. I do agree that we should educate the general public how to travel on railroad trains; and, in order to do that, we must educate them how to live in houses. Not until people realize that cleanliness is our great bulwark against disease, whether it be in the home, the train or the ship, will they keep their environment clean. A speaker at the surgeon-general's conference the other day put the thing very aptly. He said that regulations had been made excluding from trains the common towel, that the common drinking-cup had been abolished, and that it would not be very long until the common brush and comb were taken from the train. He said, after that the next thing will be to abolish from trains the common hog.

Dr. Charles J. Hastings, Toronto, Ont.: I would emphasize the importance of better safeguarding in transportation by water. Dr. McCullough has already drawn attention to this in his reference to the work being done by the international joint commission. We have had an excellent demonstration in Toronto of the necessity for prompt action along these lines. In 1911 we found that a large percentage of our cases of typhoid in the summer months was traceable to the boats that cross our international waters. On investigation we found that the water used was all more or less contaminated with sewage. When the order was first issued to the company to abate this nuisance forthwith, they treated it with a certain amount of indifference, I then wrote them that their boats would be tied up at the docks on their return if they did not give ample evidence that their crew and passengers were to be properly and efficiently safeguarded; this resulted in prompt action on their part. They are only permitted to take water from the center of the lake; they have installed tanks of sufficient capacity to meet their requirements for the balance of their trips. Most of these boats have been so equipped as to meet these requirements and, consequently, this source of danger has been practically eliminated. Hundreds of thousands travel annually over the international waters extending from Duluth to the mouth of the St. Lawrence, into which, by our primitive methods, we are pouring millions of tons of sewage every day.

Dr. M. P. Ravenel, Columbia, Mo.: A very excellent paper by Dr. J. O. Cobb of the Public Health Service appeared in The Journal of the American Medical Association several years ago calling attention to the fact that whether or not steamships on the Great Lakes took their water from the center of the lake, they got a certain amount of sewage into their water tanks, because the pipe through which the water is drawn opens out through the bottom of the ship, and when standing in port this pipe is filled with sewage. When the pumps are started to fill the tanks with water this sewage is first sucked up.

Dr. N. F. Campbell, Chicago: One word about education. The railroad I am connected with issues a magazine—fifteen or twenty thousand copies a month—and we have an article on sanitation in that magazine. I don't believe that water-coolers can be kept clean by cleaning them out every two weeks. They ought to be cleaned out at the end of every run. You will always find them dirty then. I have had a good deal of trouble with dumps. Railroads have a lot of waste material, and they throw it all into one place as filling material. This causes all kinds of trouble, and I have concluded that they should not do that without taking extra care about it.

LOCAL ANESTHESIA IN THE PREVENTION OF AFTER-PAIN AND SHOCK

ARTHUR E. HERTZLER, M.D.
KANSAS CITY, MO.

Immediately after a major operation under local anesthesia one is impressed by the well-being of the patient and by the diminished after-pain as compared with similar operations under narcosis. The inference that we have here the solution of the problems of after-pain and shock is easily made; but unfortunately most surgeons come to realize that these problems are not simple ones, and that local anesthesia is not alone adequate to solve them.

I. AFTER-PAIN

After operations patients begin to feel pain at various periods, depending on the anesthetic used and on such other considerations as normal differences in the regions operated on, the state of tissue at the site, and the attitude of the individual toward discomfort and pain. The duration of anesthesia by an agent used locally can be determined approximately by experiment, but in an operation such data cannot be entirely trusted because of the variable factors mentioned above.

Generally speaking, we may consider that anesthetics interrupt the propagation or perception of painful impressions, and that the amount of painful impressions originated does not vary no matter what agent is used. If local anesthesia lasts an hour or two, the total after-pain is reduced by that much. In the case of ether anesthesia, the time between the infliction of the first wound and the return of consciousness deducts from the total after-pain. In many of the published observations on after-pain, a fallacy to the discredit of ether anesthesia has been introduced from the fact that most operators use a preliminary dose of morphin with local anesthesia, but not with general. The effect of this narcotic may last after local anesthesia has worn off, but does not interfere with the clear consciousness of the patient that he has withstood the operation. For this comfortable state of mind, the local anesthesia is likely to get the credit. On the other hand, when the ether patient who has had no morphin awakens, his befuddled brain is impressed with pain impressions from the operated region. His sensitiveness is heightened, his orientation confused, and his vocabulary loosened.

If one compares a long series of patients who have been operated on for the same malady, some with local, some with general anesthesia and all with a preliminary injection of morphin, with a like series in which morphin has not been used, one finds that the difference between local and general anesthesia as to the amount of after-pain is not very great. If, now, a similar series of comparisons be made with novocain and gas, with and without morphin, one has a fair basis for comparing the different methods. Ether patients complain the most, but between gas and novocain patients there is not much difference when the duration of the novocain anesthesia is considered.

Patients who have been operated on at one time under ether anesthesia and subsequently for a similar operation under local anesthesia—as, for instance, when operated first on one side and then on the other for hernia, or for block dissections of the neck — when asked to compare the methods, declare invariably in favor of local anesthesia because they escape the ether. The difference in after-pain is seldom mentioned. In a few cases only, such as about the anus, and in the fingers and toes, is after-pain a prominent feature. If one places the two methods in this way approximately on equal grounds, one loses much of his enthusiasm for local anesthesia as a preventive of after-pain.

In considering after-pain with local anesthesia, one must consider the hyperesthesia which often occurs about the insensitive region. As I have previously pointed out elsewhere, this is an extreme hyperesthesia to touch which often lasts for days and is difficult to estimate or to control. Irritation by the end of a suture or from the sliding of a dressing may cause acute pain. Such pains are usually disregarded by the operator because he fails to comprehend them or to measure their importance. After experiments on myself I have more than once, when the bedclothes gently stroked an hyperesthetic area, sat up in bed and delivered eloquent remarks on the folly of self-experimentations. These things have received scant recognition in the literature, but they sometimes play an important part in the discomfort of the patient and must be added to the sum total of after-pain in operations under local anesthesia.

These remarks apply especially when novocain in combination with epinephrin is the local anesthetic used, because of its evanescence. There are some cases in which local anesthesia may be used with confidence to prevent after-pain. Quinin, when properly used with full consideration for the possible hyperesthetic zones, is of great value on account of the duration of its effect. In major amputations, infiltration of the exposed nerves with quinin and urea hydrochlorid relieves after-pain and its consequences with certainty. In the incision of inflamed areas on the extremities, such as felons, blocking with quinin will control the after-pain for a long time. In general it may be stated that, when all nerves leading to a part can be infiltrated with a lasting anesthetic, pain may be controlled. In regions in which nerve anastomosis is free, as about the anus, the pain is as likely to be increased as decreased by the anesthetic unless definite rules are observed. In operations for hemorrhoids, for instance, infiltration of a ring about the individual pile may be followed by exquisite pain, while infiltration directly into the pile itself will be usually followed by prolonged anesthesia. The reason for this is plain. The prolonged effect of quinin is due to the granular fibrin deposited about the nerve-endings and fibrils. Therefore, when a ring is injected about a pile, the skin is anesthetized for a long period only where there is a deposition of fibrin. The area within is anesthetized for a brief period only and when this brief period is ended hyperesthesia replaces the anesthesia, and if a ligature or suture has been placed in such an area, exquisite after-pain is the result. Sacral blocking with quinin in operations on the anoperineal region serves in most instances as an effective means of controlling postoperative pain for a long period. It is possible that such prolonged blocking of the nerves may affect the healing of the tissues.

Ford Rogers first used quinin and urea hydrochlorid purely for the control of after-pain, by injecting very painful areas during major operations under ether. For instance, if hemorrhoids are operated on at the end of an operation for other disorders, the pile is directly injected with quinin. In this way the prolonged after-pain is controlled. In major operations, generally, the nerves can be injected before they are severed. In order that such injections shall relieve the after-pain, however, they must be done with the same care and in the same manner as though the operation were being done under local anesthesia.

The greatest service of local anesthesia in the prevention of after-pain has been in teaching the operator which tissues are painful. After-pain usually results from the incision in the skin, which produces a burning or stinging sensation lasting some hours, and from the ligation of sensitive parts, which produces an intense burning or throbbing pain lasting from twenty-four to seventy-two hours. If, therefore, one avoids placing constrictions about painful tissues, there will be relatively little pain. This applies to stitching of such viscera as the gall-bladder, folding of round ligaments, ligation of nerves and particularly tight suturing of skin.

Fortunately, tissues that require firm suturing are insensitive and sensitive tissues do not require firm suturing. Fascia has no nerves, and if in the course of an operation requiring the opening of the abdomen the prefascial fatty tissue is elevated, the fascia proper is without pain. The parietal peritoneum must be coapted with the greatest gentleness, with fine sutures, using just sufficient force to bring it into contact. The fascia, when freed from the nerve-bearing fatty layer, may be sutured together firmly and under such tension as will relieve the strain on the peritoneal sutures. This line of sutures is the only one of consequence in securing firm union, a fact abundantly attested to in the various operations for hernia. If vessels requiring ligation have been severed the accompanying nerves must not be included in the ligature. The importance of this can be best studied in ligating the superficial branches of the deep epigastric vessels in operations for hernia. If the vessels are picked up before they are cut they may be ligated without pain. This cannot be done with a heavy forceps, but with delicate instruments small vessels may be readily picked up without any surrounding nerve-containing tissue. Even slight constriction of nerves becomes painful when the effect of the anesthetic passes off.

From the foregoing it would seem that by the use of quinin and urea hydrochlorid, after-pain could be controlled with certainty. Unfortunately, this drug by its mode of action brings with it its own limitations. The prolonged anesthesia is due to the deposition of granular fibrin (often erroneously referred to as edema). Anesthesia lasts until this fibrin is absorbed. The amount of fibrin formed depends on the strength of the solution, the length of time it acts, and the character of the tissues injected. Moderate injection of the skin produces a prolonged certain anesthesia. An excess produces a retardation of the healing of the wound. In loose tissue, as of the neck and preperitoneum and in muscle, exudate is excessive, and an indurated mass results which may disturb the line of suture. In the peritoneum and in the neck the thickened masses may cause the patient some apprehension, and about the anus they give an uncomfortable feeling of fulness. It is only in conditions in which prompt healing is not imperative that quinin can be used to secure its fullest effect as an agent to control after-pain. These conditions are found in anal operations and in the opening of abscesses, particularly appendiceal, pleural and pulmonary. The control of pain is perfect in nerves exposed during the course of operations. Experience alone enables the operator to approximate the effect he desires to produce. Imperfect as it is, however, quinin alone at the present time offers any hope for the control of after-pain.

With this, I believe, rests the problem of after-pain. Local anesthesia may teach us to perfect our technic so that after-pain is reduced to a minimum, but it cannot prevent it. The cheerful squirting of a few syringefuls of local anesthetic solution in the neighborhood of a carelessly handled wound is entirely futile. The skilled operator who by study or intuition has learned delicacy of manipulation is able to decrease greatly the after-discomfort incident to the operation. Local anesthesia contributes to well-being after operation, not chiefly by preventing after-pain at the seat of operation, but by eliminating the effects of ether. Schlesinger is no doubt speaking from experience when he expresses the opinion that we are just beginning our studies of the use of local anesthesia in the amelioration of after-pain.

II. SHOCK

The use of local anesthetics prevents the transmission of impulses to the brain during the time of operation and for a variable period afterward. What effect the transmission of the pain during the operation may have on the subsequent well-being of the patient is not easy to estimate. Intense after-pain, as after unskilful ligation of hemorrhoids, or tight sutures in other sensitive tissues, may produce intense pain for prolonged periods, but shock does not follow. On the other hand, shock may follow operations on regions not particularly sensitive.

The kind and source of the pain must, therefore, be a factor in the production of shock; but because of the close association of the various types of nerves the importance of painful impulses in the production of shock is not definitely known. We do not know what shock is; we know only something of the conditions under which it occurs. It is difficult, therefore, to estimate the value of local anesthesia in the prevention of shock. Besides inhibiting pain the anesthetic may inhibit afferent impulses which are not perceived as pain, but which produce the state we call shock. If this be true local anesthesia might be a factor in the prevention of shock or might even prevent it entirely.

Enthusiasts have, in fact, stated that with local anesthesia there is no shock. This is not true, and as the experience of the enthusiastic advocate of local anesthesia increases, his statements become more conservative. There can be no doubt that shock is diminished, but whether this is due to the merits of local anesthesia or to relief from the ill effect of general anesthesia is still a question. If big operations are done under local anesthesia, even when there is no pain, one can now and then feel his patient wilt under him. This may occur without the patient suffering pain or mental agitation or loss of blood, and when intoxication from the anesthetic used is not likely.

This may be best observed in block dissections of the neck for carcinoma of the lip and tongue. A case in point may be cited. The patient (man aged 56) came to the table perfectly calm. The operation proceeded without pain. Everything was being removed but the common and internal carotid, the sympathetic and vagus. As efforts were being made to get a ligature on the jugular high up, the patient began to lie flatter on the table. When asked if he was feeling it, he replied, "No, not a bit," but came back with the question, "Are you about through?" Is he receiving impulses from the field of operation not interpreted in terms of pain? Is it a feeling of anxious apprehension and if so would gas at this point save him? Anticipation of this state by the use of gas in the latter stages of the operation does not prevent the collapse. I believe his apprehension is due to impulses he got which were not fully blocked off—perhaps a tugging on the jugular within the skull. At least it occurs in individuals who deny that they experienced either pain or fear.

The occurrence of shock is a rare thing outside of traumatic accidents (whether or not produced by surgeons). When shock does occur in the hands of a competent operator it affects patients suffering from metabolic disturbances or from lesions which make extensive traumatism necessary, such as deeply seated adherent tumors, the removal of which is attended by injury to sensitive tissue. Of course it is difficult to estimate accurately the mental state of the patient. We can only judge by what he tells us and by what we can see. Patients who do not admit pain and seem to suffer no mental agitation sometimes return to bed weary and in perspiration. It has always seemed to me that the removal of tissues abundantly supplied by sympathetic nerves is more apt to be followed by this condition which we may call mild shock. In laparotomies under local anesthesia, explorations about the duodenum and gall-bladder or pressure on the kidney often make the patient look pale and weaken. When asked if it is causing pain he replies, "No, but it makes me feel sick." Unfortunately, regions most abundantly supplied by sympathetic nerves have not as yet been successfully blocked with local anesthetics and it is useless to speculate on what would happen if we could. True, many operators have attempted blocking of the rami communicantes, but with uncertain success. We are compelled to admit, therefore, that with respect to the shock-potent regions near the solar and sacral plexuses we have as yet no information which will enable us to determine how much could be done to prevent shock if we could block them off.

In desperate operations in which shock is to be expected, we are forced to resort to general anesthesia at least for that portion most likely to produce shock, namely that portion concerned with irritation of sympathetic nerves.

In the prevention of shock local anesthesia stands in much the same relation that it does in the control of after-pain. It eliminates the ether. Ether is not only unpleasant to the patient, but it injures and in some instances endangers him. No attempt will be made here to study the chemical effects of ether. I may say, in passing, that it is a lipoid solvent and dissolves out the cement substance between the cells to which it has access. These changes resemble those due to physical fatigue and perhaps to stimulation through the nerves. The profession is slow to convict a recognized procedure of danger or deficiency until it is sure it can get along without it. It is questionable if we should have discovered chloroform liver necrosis if we had not had ether. My own studies on the chemical effect of ether on living tissue convince me that ether is capable of harm to a degree second only to chloroform. In the vast majority we operate on patients under local anesthesia in order to save the discomforts of ether; in some instances we employ it to avoid the dangers of ether. We use local anesthesia, therefore, because it adds to the comfort and safety of the patient—both of which are attained chiefly by the elimination of ether.

Local anesthesia fails us in the essential steps in those operations which are attended by shock. Apprehension for the operation has much to do with the resistance of the patient, we admit, and hence, with the result of the operation. Sometimes, back of all that causes both apprehension and resistance, there is such a factor as constitutional disease. The effect of fear may be eliminated in some patients by local anesthesia, but it is eliminated in a greater number by the assurance that they need not go to sleep. It is the fear of that sleep that injures the patient. Nothing does so much to tranquilize a patient as the assurance that ether will not be necessary. In the desperate cases we cannot give this assurance, but it helps somewhat to say that we will go as far as we can and then give a little gas (and then ether *voce dulci*). In this way we shorten or avoid the ether, which is the essential thing. Also we must be gentle and considerate in our demeanor and in our operative technic.

Too little attention has been paid to the preparation of the patient. A case in point may illustrate this. An exceedingly nervous patient with a goiter was told that it could be removed under local anesthesia. She became much agitated and declared that she wanted to hear nothing of local anesthesia. She wanted to be asleep and know nothing about it. The anesthesia was not mentioned again. She was put to bed and told to let me know when she was ready for the operation. She was placed on bromids and after five days informed me that she was sufficiently rested to have the operation the following day. She was given 10 grains of veronal in the evening. When visited in the morning she declared she felt fine. She received morphin 1/8 grain, atropin 1/150 grain. After she was placed on the table she was told that local anesthesia would be proceeded with. She made no comment and there was not a particle of trouble with the operation.

Many who believe they are following the anoci-association method of Dr. Crile content themselves with a little aimless squirting of local anesthetic into the patient's skin and a little more into a perfectly nerveless fascia. They begin the operation before the anesthetic has had time to act. They overlook the skill and gentleness and the avoidance of ether which the originator brings to the method. The imitator is perhaps not alone to blame, for Dr. Crile himself evinces a greater faith and achieves better results than anyone else who is experienced with local anesthetics. After several years' study of the action of quinin both clinically and histochemically I am unable to understand Dr. Crile's faith. What quinin will achieve in the peritoneal fascia, aside from making the healing of the peritoneum uncertain, was not ascertained by my experiments. Without giving details of technic he states in describing his operation for thyroidectomy: "Before the wound is closed the entire raw field is infiltrated in every part with quinin and urea hydrochlorid." The raw field, in so far as infiltration is permissible (excluding the trachea, vessels and vagus nerve), is composed largely of muscle. This tissue causes no after-pain and when infiltrated with quinin exudes a reddish fluid which does not coagulate and tends to prevent wound-healing for a long time. These facts have caused me to avoid the use of quinin in thyroidectomies.

All this is looking only at the simpler phases. In those operations in which shock is likely to follow, local blocking has as yet offered nothing. The nerve distribution to the viscera is such that a deposit of anesthetic solution in their vicinity is uncertain and in the presence of adhesions and inflammatory exudates an effect on the nerves is out of question. In those instances in which it is applicable, a wait of from fifteen to twenty minutes is required before the action is complete. This delay is not without moment. True, Dr. Crile seeks to hasten its action by pressing on the area infiltrated, which, theoretically, should delay its action.

When operating with local anesthesia while the patient is asleep with gas, the operator is unable to determine whether or not the tissue is anesthetized. Bloodgood has called attention to this point. Unless the infiltration is perfect it misses its point. The gas is to serve only to prevent the patient from knowing that he is being operated on.

Dr. Crile, in speaking of the elimination of shock, admits that the patient does not always escape a dangerous depression. If, however, this depression results fatally it makes little difference whether or not there are changes in the brain-cells. By emphasizing the changes in the brain-cells, Crile removes from the term "shock" its purely clinical meaning, and substitutes an unproved histologic hypothesis. We know, as yet, too little about the termination of the nerves transmitting pain to be sure that changes found in a given nerve-cell are due to such transmitted stimuli.

Nor has an unquestionable proof of the relation of nerve-cell changes to the clinical picture called shock, yet been advanced. Local anesthesia to date has eliminated shock from those operations which can be done under its influence. In the larger operations, however, except those about the neck for carcinoma and in carcinoma of the rectum, it has not, as yet, been fully successful. In many operations, by reducing the period of anesthesia, it has reduced the tax on the patient's resistance. In the grave abdominal operations it has, so far, contributed but little. The visceral nerves, when irritated by inflammation or by the invasion of new growths, are exceedingly sensitive, and no safe method has yet been devised to prevent the transmission of these impulses to the brain. In these cases all that local anesthesia can do is to make the abdominal wall insensitive, and it seems likely that this is but a small factor in the production of shock. The prevention of shock in these cases must depend on the deftness of the operator, and his ability to judge conditions correctly in order that he may manage them with the least traumatism, in the shortest time, with the least loss of blood.

Rialto Building.

DISCOVERY OF BACTERIUM TULARENSE IN WILD RABBITS AND THE DANGER OF ITS TRANSFER TO MAN

PRELIMINARY NOTE *

WILLIAM B. WHERRY, M.D.
AND
B. H. LAMB
CINCINNATI

We wish to record our recent demonstration of *Bacterium tularense* in a fatal epizootic among wild rabbits, and to emphasize again the fact that this disease is probably widely distributed among rodents and probably transferred to man more frequently than heretofore recorded. We have demonstrated this virus in two severe cases of conjunctivitis accompanied by lymphadenitis, high fever and marked prostration. The first case of human infection has already been reported by us.[1] This case came under the care of Dr. Derrick T. Vail[2] of Cincinnati, who has reported the details of the clinical course of this case. The second case is still under the care of Dr. Robert Sattler of Cincinnati, and will be reported by him.

McCoy and Chapin first described the disease in the California ground squirrel. Naturally we have been anxious to find the source of human infection in this locality. Through the kindly cooperation of Dr. J. H. Landis, Health Officer of Cincinnati, we have been able to do so. Dr. Landis heard that rabbits were dying in large numbers in the neighborhood of Vevay, Ind. (Switzerland County). Two men were sent down, November 12, to investigate the rumor. They could not find any evidence of extensive mortality among rabbits, but they shot three and found two dead on the M. farm about 6 miles from Vevay. These were dissected, November 13, and both of those found dead were proved to be infected with *B. tularense.*

Rabbit 1.—The external appearances were normal, excepting for the presence of many fly larvae in the nose and mouth and on the skin. None of these had penetrated the tissues, so it is presumable that the rabbit was found soon after it died. On dissection the subcutaneous tissues showed some injection.

There were many small irregular areas of hemorrhage into the skin covering the posterior aspect of the hind legs and rumps. The cervical glands were congested and firm on section. The spleen was a deep blue-black and about four times the normal size and speckled all over with minute whitish foci of necrosis. The liver was congested and also showed numerous foci of necrosis. The lungs appeared normal excepting for a few patchy areas of consolidation of a deep brownish-red. The peritoneal cavity was full of a hemoglobin-tinged serous exudate.

Smears from the spleen stained with anilin (Hoffman's violet) showed numerous irregular, coccoid, encapsulated bodies resembling the involution forms of *B. tularense.*

Guinea-Pig 1 inoculated subcutaneously with an emulsion of the spleen of Rabbit 1 was chloroformed when dying on the third day thereafter. It showed the typical lesions which have been described by McCoy and Chapin, and by us.[1] *B. tularense* was isolated from the spleen of this guinea-pig on a slant of coagulated egg-yolk, while no growth appeared on control slants of plain nutrient agar and rabbit's blood agar.

Rabbit 2.—This animal showed marked post-mortem decomposition and was badly fly-blown. However, minute whitish foci of necrosis could be made out on the soft enlarged spleen and on the liver. An enlarged axillary gland was emulsified and injected subcutaneously into Guinea-Pig 3. This pig died in three and a half days, showing the typical lesions of infection with *B. tularense.*

We are anxious to help physicians in the discovery of further cases in man. It may be that physicians in country districts who have not the facilities for bacteriologic study may be willing to send us material from severe cases of conjunctivitis or lymphadenitis in man. These may well prove to be cases of this disease when there is a history of having shot or handled rabbits, squirrels or ground squirrels. A cotton swab, soaked in such exudations as can be reached, mailed to us by special delivery and accompanied by a note concerning the nature of the case will be reported on as soon as possible.

---

* From the Laboratory of the Cincinnati Hospital.

[1] Wherry, W. B., and Lamb, B. H.: Jour. Infect. Dis., 1914, xv, 331.

[2] Vail, D. T.: Ophth. Rec., October, 1914.

Conservation in Evolution.—Organisms have evolved by a trial and error method; they experiment organically, instinctively, and intelligently; above all, perhaps, in the mysterious antenatal life of the germ cells they experiment in self-expression—just as water vapour does in snowflakes, but far more subtly. What are called variations and mutations in biological language are the organism's experiments in self-expression, and these are the raw materials of progress. The organism proves all things, but the other side is that it holds fast that which is good. Great gains once made are not held lightly. Species become extinct and races perish, but important organic inventions are carried on by some collateral lineage. It was probably some ribbon worm that first manufactured hemoglobin—the all-important red pigment of the blood. Many backboneless animals of higher degree on different lines of evolution have not got it, but the invention was too good to lose; and everyone knows that it was retained on collateral lines, and that all backboned animals from fishes onward have red blood. Or again, the most primitive and in a way most puzzling kind of locomotion is that of the ameba gliding in the pond. Is it not a most suggestive fact that our health from day to day and the development of our nervous system are absolutely dependent on this self-same ameboid movement?—J. Arthur Thomson, *Brit. Med. Jour.*

Therapeutics

PREVENTION IS GREATER THAN CURE

(Continued from page 1953)

X

MEDICAL INSPECTION OF SCHOOLCHILDREN

The importance of this subject is evident when it is estimated that 70 per cent. of deaths in the United States are due to contagion, that the vast majority of such contagion originates in schools and that, annually, about 11,000 die of scarlet fever, about 10,000 of whooping-cough, and about 9,000 of measles.

Some considerations in the prevention of disease acquired in school are as follows:

It is estimated that each pupil should have 15 square feet of floor space and 200 cubic feet of air space. Each schoolroom should be about 30 feet long, 25 feet wide, and 13 feet high, and should accommodate not more than fifty children. Allport states that the temperature should be about 68 F., and the humidity between 60 and 70. The thermometer should hang where it will tell the truth, and the best region with this object in view is on a bracket on the inner wall about 4 feet from the floor.

The sanitary measures require proper plumbing, proper drinking facilities, proper towels, sterilization of pencils, books, etc., and antiseptic cleaning of schoolrooms. Safety requires good fire escapes and fire drills.

Medical inspection was started systematically in Belgium, and is now being gradually adopted by many of the European countries and by a large number of the cities of the United States. Perhaps more than 500 of our cities now require medical inspection. Such inspection has been shown to be a necessity and not a luxury. It has been shown that contagious diseases are more prevalent during the months when schools are in session than when there is vacation; therefore if civic and state governments compel the attendance of children at school, they are bound not to subject the pupils to an increased danger of disease and death. Hence medical inspection should be required by state laws, and about half of the states have already passed such laws. It should not be left to the petty decision of towns or cities, although the larger cities have long been pioneers in this work.

This article will not attempt to deal with the question of salaries or the best method of managing the work cooperatively with the boards of health and school boards. The medical inspectors should be selected for their ability and interest in such work, and should be paid adequately. Also, they should not be subject to removal by political changes, if their work is satisfactory.

The results of the inspection for contagion or infection should be noted on a filing card, which record should be filed separately from the cards previously described in the "physical examination," although a cross-reference on the physical examination card should be made. Later, on this contagious card, there should be noted the results of treatment and the outcome of the case.

It is not suggested or advised that there be two sets of medical men examining and inspecting in schools, but it is urged that the two kinds of work are distinct, that the latter, medical inspection, is essential, and that as much of the former, physical examinations, should be undertaken as is possible. The work can be, at least in small districts, splendidly combined.

The same care should be exercised by the medical inspector not to overstep his rights, but to refer all cases back to the parents and the family physician, as was urged in the physical examination discussion. The trained nurse of each school or each district should follow up each case of infection sufficiently to determine that the child is being properly cared for, and that the infection of others is prevented. In all cases in which a complete examination is desirable the consent of the parents should be obtained beforehand. In all cases where any examinations of girls are made, the trained nurse should be present. A private examining room in each school will facilitate and minimize the objection to such examinations.

A FEW SUGGESTIONS FOR THE MEDICAL INSPECTOR

1. The medical inspector should note the vaccination mark (present, absent, character).
2. He should note skin eruptions.
3. He should look for evidence of body or head lice.
4. He should be on the lookout for trachoma (which in some regions is of frequent occurrence).
5. The inspector should make a careful examination of every child found by the teacher or trained nurse with eruption, sore throat, a suspicious cough, or fever.
6. He should examine all other children who are in immediate contact with the one who is ill or is found to have a contagious disease.
7. He should examine all other children who live in the same house as the one affected and who are attending school.
8. He should cooperate with the board of health to determine when a cured child should return, and when suspects should be subjected to, and when they should be released from quarantine.
9. When there is no physical examination of all children in a school as previously outlined, the inspector should make as much of an examination of apparently unhealthy children as possible. The important objects to be determined are: the condition of the teeth, nose, throat, eyes, ears, spine, feet, ankles, glands, heart, lungs, nutrition, mental condition, etc.

NUTRITION

Medical inspection should really be medical supervision at least with the aid of the trained nurse, and a great problem of child health and of prevention of disease is that of nutrition. Underfed children are in goodly numbers, as shown by such statistics as are available, and for such the question of the diet at home is important, especially the breakfast. The homes and diet of all ill-nourished children should be investigated by the trained nurse. The value of the school luncheon is unquestionable; however, its advisability must be determined by each community, but the actually underfed children must in some manner be provided with good food. There is no possible excuse for compelling a child to study who is receiving insufficient food.

EYES

A very large percentage of children of school age are found to have defective eyes. Such defects being discovered, how many receive the proper glasses, and then how many keep their glasses properly adjusted, and how many have reexamination as often as they should (such examination should be once a year) to determine the changes that will occur? It is readily seen that the eye question is a serious one.

As many children as possible, who have been found to have defective eyes and eye-strain, should be sent by their parents to oculists of repute, and the danger of consulting opticians and so-called optometrists and department store eye clerks should be explained on a printed slip issued by the board of health or the school board. This paper should also urge that the child have spectacles with large sized lenses and rigid, light weight, inexpensive frames. There is no other method to equip an astigmatic eye properly, especially in children. All other frames, for a child, are a delusion and a snare. If a family can afford it, "dress up" gold or gold-filled frames may be had as an extra pair. Each child with glasses should have a good case for them, and in all rough games the glasses should be taken off and deposited in these cases and the cases placed in a safe spot. This detail may seem superfluous, but it is all-important.

If the visiting nurse ascertains that the parents are unable to pay for a skilled oculist's examination, or for the lenses, then the child should be sent to a regularly appointed oculist who receives a small salary for such services. Later the prescription for glasses should be taken to a regularly appointed optician or one of several who have contracted at minimum rates for such cases. Dispensary service for determining the correct refraction of a child's eyes for his life work is unsatisfactory and generally unavoidably bad. A child had better have no glasses at all than to have incorrect ones. Neither should it be expected that the oculist can devote time and science, unpaid, to such a nerve-tiring work as determining the proper glasses for children. They are willing to do emergency and eye disease work for the poor gratis, but eye refraction work should be paid for. Why should a community demand that a child go to school and then demand that some member of the community, without pay, make the child fit to go to school? On the other hand, the correction of eye-strain in children not only causes them to learn with more ease, but prevents eye defects that may mean untold suffering for years after. The migraine sufferers will certify to the correctness of this statement.

TOBACCO: ALCOHOL

There is no question that during the teaching of school hygiene, during the study of physiology in school, and during the brief description of the action of, and the antidotes to, the more common poisons, the baneful effects of tobacco and alcohol should be honestly shown. It is of no more advantage to disseminate lies in regard to these narcotics and habit-forming substances than to teach any other branch of knowledge incorrectly. The truth is bad enough.

It is inexcusable for parents to give young children alcohol, but it is not wise to teach children that because their parents occasionally partake of a glass of beer or wine, they are condemned to perdition physically and morally. The higher standards of communities and the proper supervision of all places that sell liquor that is to be drunk on the premises will soon make overdrinking unusual except in the diseased. The moderate use of alcohol by adults must for some time be a matter for individual decision. Youth and those under age should not take alcohol in any form, not even tinctures or caffein stimulants at the soda-water fountains.

Much more serious for the many among our young boys and young men is the overuse of tobacco. Where one young man uses alcohol perhaps twenty use tobacco. Cigaret smoking in young boys is tolerated in some preparatory schools, and even in some public high schools. In fact, a large number of young men under 21 years of age smoke excessively and to their detriment mentally and physically.

The symptoms and signs of oversmoking, the impaired chest and lung development, the impaired heart action, the impaired nutrition, injured nerves and weakened muscles are all matters of medical knowledge. These vary only in degree in young boys who overuse tobacco, and are all more or less in evidence sooner or later. Emphatically, growing boys should not be allowed to smoke, even if their fathers and teachers do.

(To be continued)

New and Nonofficial Remedies

The following additional articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association. Their acceptance has been based largely on evidence supplied by the manufacturer or his agent and in part on investigation made by or under the direction of the Council. Criticisms and corrections are asked for to aid in the revision of the matter before publication in the book "New and Nonofficial Remedies."

The Council desires physicians to understand that the acceptance of an article does not necessarily mean a recommendation, but that, so far as known, it complies with the rules adopted by the Council.

W. A. Puckner, Secretary.

ANTIRABIC VACCINE (See N. N. R., 1914, p. 269).
Laboratory of W. T. McDougall, Kansas City, Kan.

Pasteur Antirabic Vaccine.—The virus is prepared according to the method of the Hygienic Laboratory, Washington, D. C. An amount of the dried cord, sufficient for one dose, is emulsified in 50 per cent. glycerin accompanied by a syringe containing sterile physiologic salt solution for further dilution at the time of administration. A dose is sent daily by mail in a vacuum container. The treatment consists of twenty-one or twenty-five doses, according to the severity of the wound.

SOLUTION PITUITARY EXTRACT.—An aqueous sterile solution of a purified extract of the posterior (infundibular) lobe of the pituitary gland of the ox, sterilized by addition of camphor water and 0.5 per cent. of boric acid. Each cubic centimeter is assayed to correspond in strength to 0.2 Gm. of the fresh posterior lobe.

Actions and Uses.—Solution pituitary extract stimulates the unstriped muscle, especially affecting the arteries, spleen, uterus and intestinal muscles.

Pituitary extract is used (by hypodermic or intramuscular injection) mainly to stimulate the uterine contractions in labor. It is also employed in pareses of the intestines and bladder, especially postoperative. It has been tried as a circulatory stimulant and diuretic but is probably of little if any use for these purposes.

This remedy should not be injected during the first stage of labor, because if the os uteri is not fully open the energetic contractions may cause a rupture of the uterus.

Dosage.—The average adult dose is 1 Cc.

Manufactured by H. K. Mulford Co., Philadelphia. No U. S. patent or trade-mark.

Ampules Solution Pituitary Extract.—Each ampule contains solution pituitary extract 1 Cc.

Fresh posterior lobes of the pituitary gland of the ox are ground, dried, defatted, extracted with acidulated water, purified by heating to coagulate inactive protein matter, and the solution so obtained assayed by the isolated uterus method (*Jour. Am. Pharm. Assn.*, June, 1914, p. 808). After adjustment to proper strength it is sealed in ampules and sterilized by heat.

Solution pituitary extract is an almost colorless liquid having a faint odor of camphor.

THE JOURNAL OF THE
AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street . . . . Chicago, Ill.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

Contributors, subscribers and readers will find important information on the second advertising page following the reading-matter

SATURDAY, DECEMBER 5, 1914

VOLUNTARY ACCELERATION OF THE PULSE-RATE

It is doubtless true in the case of most persons that they are unable to render many of their important physiologic functions subject to the action of the will. The performances of the alimentary tract proceed without our knowledge and independent of any volition on our part. The heart carries on its duties in the maintenance of the circulation with persistent efficiency and without interruption. The contraction of the cardiac organ is modified by impulses that come to it from within and without; but these regulatory impressions are rarely the direct product of the human will.

There are persons, though they seem to be exceptional and few in number, who can exercise a voluntary regulation of the heart-beat. Tarchanoff,[1] in 1885, observed a medical student who could alter his pulse-rate at will. He found that men with this faculty had generally an exceptional control over their skeletal muscles; for example, they could bend the third joint of a finger independently of the other joints, or contract the platysma muscle, or certain individual groups of the muscles of the arm and neck. In the case observed by Pease,[2] the subject could voluntarily accelerate his pulse-rate as much as twenty-seven beats per minute and likewise exhibit the control over other muscle groups just referred to.

It is, of course, a well-known fact that the cardioregulatory centers can be affected by stimulation of afferent nerves, and can be influenced experimentally from the cerebrum or by the action of the blood on the centers. The frequency of the pulse can be altered by psychic and emotional states. Thus in many persons it may be slowed by directing attention to the contemplation of painful subjects. The mere physical examination on the part of a physician may give rise to a familiar acceleration of the pulse. In the case of an individual counting his own pulse its frequency may even become diminished. In conditions of hypnotism, the pulse-rate has been observed to change markedly under the influence of suggestion. All such instances, however, belong in quite a different category from the direct voluntary acceleration of the heart-beat in man to which we have particularly referred.

What is probably the most carefully recorded illustration of this anomalous behavior has been described by Koehler, a student in the physiologic institute at Strassburg, who is able to increase his pulse-rate as much as twenty beats per minute by the impulse of his will.[3] He remarks that the mere concentration of his attention on the activity of the heart is not of itself sufficient to produce the acceleration. The mere "will" to increase the pulse-rate must be accompanied by an indescribable mental effort which is comparable with that whereby we provoke a contraction of our voluntary musculature—a voluntary effort, it might be designated. In order to accomplish the feat it is essential, in Koehler's case, to avoid the distractions which noises, unusual sights and similar stimuli playing on the sense organs may create. Although he can almost invariably succeed in evoking the acceleration, he is utterly unable to induce a slowing of the pulse-rate by an act of will. In his case there is reported to be a lack of the peculiar temperament or neuromuscular make-up which has been described for others. During the voluntary acceleration of the heart-beat no unusual physiologic or mental peculiarities appear. There is no blushing or sweating which might suggest a greatly altered vasomotor response. Only when extreme effort to accelerate is attempted do special muscle groups show any subjection to the peculiar voluntary control. At these unusual moments of most intense "willing," slight shivering or trembling of muscles in the neck or arms may be exhibited. A striking phenomenon is the evident dilation of the pupils. A sensation of indefinable discomfort and intrathoracic pressure makes itself felt; but practice in the voluntary acceleration — a performance against which Tarchanoff uttered a warning on account of its supposed danger—makes these symptoms less emphasized.

The mere description of an unusual physiologic or anatomic phenomenon has a restricted value unless it can serve in some way to enrich our knowledge of normal or abnormal function. A careful clinical examination of Koehler by Wenckebach of Strassburg failed to disclose any unusual condition of the heart at any time. There were no irregularities of the beat or changes in the working capacity of the heart. The acceleration of the pulse was always accompanied by changes in respiration and increased blood-pressure, but the latter is not to be looked on as a cause of the acceleration. Indeed, a primary rise in blood-pressure is much more likely to result in a decrease in pulse-rate, as a general rule.

---

[1] Tarchanoff: Arch. f. d. ges. Physiol., 1885, xxxv, 109. There are also earlier cases on record.

[2] Pease: Boston Med. and Surg. Jour., 1889, cxx, 525. Another case was observed by Van der Velde: Arch. f. d. ges. Physiol., 1897, lxvi, 232.

[3] Koehler, M.: Ueber die willkürliche Beschleunigung des Herzschlages beim Menschen, Arch. f. d. ges. Physiol., 1914, clviii, 579.

All of the cases of rapid heart action of other than reflex origin raise the question of the immediate cause of the acceleration. Is it due to a diminution of the tonic activity usually exerted by the inhibitory vagi over the heart, or is it attributable to a direct action on the centers of the accelerator nerves? The earliest careful investigator[1] of the phenomenon of increase in heart-rate in man drew the conclusion that the voluntary acceleration was due to the accelerator nerves. In an exhaustive study of the acceleration of the mammalian heart, Reid Hunt[4] came to the conclusion that the evidence for this view is entirely inconclusive. He is inclined to think that the weight of the evidence is rather in favor of the existence of a diminished tonus of the vagi in these cases. According to Hunt, the most important function of the accelerators appears to be connected with their tonic activity; and almost all cases of rapid heart action seem to be due to a diminution of the tonic activity of the cardio-inhibitory center. Koehler, on the other hand, is inclined to place the emphasis on the participation of accelerator nerves, the stimulation of which he looks on as the essential factor in the genesis of voluntary rapid heart action. The contributory influence of a diminished vagus activity is admitted.

THE FLIGHT OF FLIES

One of the problems that has arisen in connection with the part played by insects as carriers of disease[1] concerns the distance which they may be able to travel from one locality to another. This has frequently been considered in this country in connection with mosquitoes which are responsible for the prevalence of malaria. With their breeding-places known, it has become desirable in some cases to ascertain what the range of their activities might be in respect to the territory which can be covered by insects so small as are the blood-sucking *Diptera*. It has been learned in this connection that some of the mosquitoes which inhabit salt marshes near the seacoast may be found inland at a distance as great as three miles.

Far less appears to be known with regard to the migrations of the common house-fly, *Musca domestica*, an insect that has been charged with responsibility for the spread of typhoid fever and other infectious diseases. A series of studies conducted in Cambridge, England, on the range of the flight of flies of this species has been made the subject of a report to the Local Government Board on Public Health and Medical Subjects.[2] Upward of 25,000 flies were liberated, under various meteorologic conditions, from the medical buildings at Cambridge. Of these insects, colored for identification, 191 were recovered at one or other of about fifty observation stations employed for their recovery. The results showed that house-flies tend to travel either against or across the wind. The actual direction followed may be determined either directly and by the action of the wind, or indirectly owing to the flies being attracted by any odors it may convey from a source of food. A point in favor of this supposition is the nature of the station at which flies were recovered after they had traveled any distance. These comprised a butcher's shop, public houses and a restaurant, all of which gave off odors that are notoriously attractive to flies. The chief conditions favoring the dispersal of flies are fine weather and a warm temperature. The nature of the locality is another considerable factor, because in towns flies do not travel as far as in open country, probably due to the food and shelter afforded by the houses. With regard to the altitude of the point of liberation, flies set free from the roof tended to disperse slightly better than those liberated from the ground, but the differences are not very considerable. It has been observed, with regard to the vertical flight of the house-fly, that it may mount almost directly upward to a height of forty-five feet or more. The time of day appears to influence the dispersal of the insects, as, apparently, when set free in the afternoon they do not scatter so well as when liberated in the morning.

The maximum flight observed in the thickly housed localities in Cambridge was about a quarter of a mile. In one case, where a part of the distance was across open fenland, a flight of 770 yards was noted. In experiments conducted in Cook County, Illinois, by S. A. Forbes, flies were trapped and, after being sprayed with a chemical solution for recognition, were liberated from a hospital in that district. They too were recovered at distances ranging up to a quarter of a mile from the point of liberation.[3] It appears most likely that the distance flies may travel to reach dwellings is controlled by circumstances. Almost any reasonable distance may be covered by the fly under compulsion to reach food and shelter.

It has been stated that house-flies, like other insects, exhibit color preferences. Thus it is reported that a French observer, having noticed that flies did not rest on walls covered with blue paper, blue-washed the walls of his milk house and found that insects did not visit them. A recent statistical study of the behavior of the insects in this respect has failed to bring evidence that the flies display any marked color preference.[4] Therefore it seems unlikely that the adoption of any particular color for walls will have any effect on the numbers of flies entering.

---

[4] Hunt, Reid: Direct and Reflex Acceleration of the Mammalian Heart with Some Observations on the Relations of the Inhibitory and Accelerator Nerves, Am. Jour. Physiol., 1899, ii, 369.

[1] Flies as Carriers of Disease, editorial, The Journal A. M. A., Nov. 7, 1914, p. 1647.

[2] Report to the Local Government Board on Public Health and Medical Subjects, 1913, New Subject Series, No. 85, pp. 20-41. This is reprinted by Hindley, E., and Merriman, G.: The Range of Flight of Musca Domestica, Jour. Hyg., 1914, xiv, 23.

[3] Howard, L. O.: The House Fly, New York, F. A. Stokes Company, 1911, p. 56.

[4] Hindle, E.: Note on the Colour-Preference of Flies, Jour. Hyg., 1914, xiv, 46.

MEDICAL HISTORY IN THE MEDICAL CURRICULUM

At a meeting of the Königsberg Society of Scientific Medicine, May 18, Prof. Egbert Braatz,[1] who holds the chair of surgery in the Königsberg Faculty, indulged in sundry well-timed lucubrations on the decline of historical studies in medical education. As we can better understand the function of an organ if we know its embryology, which knowledge has, in itself, a history of its own, so, he points out, the real significance of many ideas and expressions current in modern medicine would be more clearly apprehended if we understood their remote origins. Not only does the interest in the history of medicine vanish day by day, he laments, but the swarm of teachers of the earlier type, who taught the subject as a distinct discipline, has also entirely disappeared. The reason is that the older universities taught the universal relationship of all the sciences, so that an old-time professor, who took nearly all medical knowledge for his province, usually "holding down" several chairs at once, was naturally in position to study and write on medical history. Nowadays medical science is split up into a large number of separate disciplines and specialties, to master any one of which is a sufficient life study for the average individual man. Hence, the specialist knows only the history of his specialty and seldom goes outside it. Furthermore, Braatz argues, the young student cannot, in the nature of things, have any interest in the history of a subject so vast that, on taking his degree, he has only just begun to learn it. It is idle to set final examinations in medical history when no adequate instruction can be given without impinging on studies of more immediate and practical moment. To obviate this, Braatz prefaces his own lectures with a sketch of the actual state of knowledge of the subject in hand, in order to close with its history. To this end, especially striking themes are always chosen. In some of the discourses introductory to the semester, a short general historical introduction is given. As an example of the practical value of his method, Braatz cites one of his lectures, "On the Treatment of Mammary Tumors," in which the ebb and flow of the different theories bearing on the unsolvable cancer problem through the ages is considered.

In discussing Braatz' paper, Prof. Carl Kaiserling, director of the Pathological Institute, states that the author opens an old wound, painful to all. Instruction in medical history is usually confided *not to* a specialist in the subject, but to a docent in some other branch, such as pathologic anatomy. To teach such a subject as pathology in all its theoretical and practical bearings is all that a modern professor can do. Who has time to study medical history as a modern should know it? It seems right and proper that our "historical sense" should be concentrated on the modern aspects of any subject. Who can even engage to keep up with the modern literature, when there are almost as many periodicals as days in the year? Historical interest in a subject can be aroused only when the latter has been thoroughly mastered in its present aspects. Hence, the study has to be postponed until the end of the student's course, or even after he has entered on the practical business of his life. The young student would undoubtedly be hindered by the introduction of prosy historical lectures at the beginning of his course. Kaiserling approves of Braatz' method, because by it, the instructor intertwines historical matter with his special subject.[2] Much of this might be connected with etymology, the bugbear of the beginner, only, alas, there are teachers as well as students who know no Greek. In further discussion of the paper, Professor Kisskalt opines that the history of epidemiology, as relating to the unsolved problems connected with the appearance and disappearance of infectious diseases, would be of a special interest, as also the history of errors in medicine. Professor Friedreich, of the University Clinic, testifies that he has aroused enthusiasm in his students by bringing historical matter directly into his clinical demonstrations.

We cannot too warmly commend the foregoing as the best method of teaching medical history in the student's curriculum. The history of ancient medicine is a dull subject in itself; the modern period, from the work of Vesalius and Harvey on, is the most inspiring, as Kaiserling hints, and long-winded lectures, by no matter what authority, would only crowd the medical course still further with material which could not be assimilated.

Probably the best lectures of the kind delivered in this country were those of the late Dr. J. S. Billings on medical history in relation to medical education, which were delivered at the Johns Hopkins University in connection with the proposed building of its hospital and the formation of its medical school. Yet neither these lectures nor those subsequently delivered by Billings at the Lowell Institute were considered worthy of publication by their author, probably because they dealt with material "gone stale," even though viewed from a special angle. But the seed thus sown did bear fruit. At the Johns Hopkins Hospital, Osler and the other professors carried "historical medicine" directly into the clinics, much in the manner which Braatz has adopted and described. And this way of familiarizing the student with the rudiments of the subject might easily be followed by the anatomist, the embryologist, the otologist, the professors of hygiene and medical jurisprudence, and other teachers in the different specialties.

---

[1] Braatz, Egbert: Deutsch. med. Wchnschr., 1914, xl, 1879.

[2] In seiner Spezialwissenschaft historische Einflechtungen macht.

THE FAT CONTENT OF THE BLOOD

Judging by the attention which is being devoted of late to the quantitative aspects of the blood, we may look forward with considerable confidence to a better understanding, in the near future, of the economy of the nutrients in their exchanges between the circulating medium and the body tissues. Some of the constituents of the blood have already been the subject of extensive investigation, notably the sugar and the non-protein nitrogenous substances regarding which we have offered comments from time to time.[1] The sugar-content of the blood is coming to rank with other more familiar quantitative constants like the percentage of hemoglobin or the number of corpuscles, as an index of the existence of pathologic conditions in the metabolism of the body. Urea estimations and other ways of determining such non-protein nitrogen as is furnished by amino-acids in the circulation are being studied in relation to the efficiency of the kidneys as organs of elimination.

Surprisingly little has developed with respect to a different group of blood constituents, the fats, which are quite as common, if not actually as indispensable, as sugar in the nutritional performances of the organism. Lipemia — characterized by an exceptional amount of fat in the blood — is familiar to most physicians as something occurring during fat absorption, when the blood-plasma becomes milky with fat. It is a phenomenon likewise frequently present in severe diabetes.[2] Whereas, however, it is not uncommon to refer to hyperglycemia or hypoglycemia, to uricacidemia, to uremia, etc., somewhat familiarly, attention has only recently been directed to the probable importance of variations in the character and amount of the fatty constituents of the blood. Even the "constants" with respect thereto are scarcely known with any degree of either accuracy or adequacy.

Equipped with a novel method of investigation, based on nephelometry, Dr. W. R. Bloor, recently appointed to the staff of the Harvard Medical School from the laboratories of biological chemistry of Washington University at St. Louis, has approached the problems of the fat-content of the blood under approximately normal conditions.[3] Obviously, we need to understand the variations that may be expected therein before it will be profitable to engage in any elaborate consideration of the perversions that occur or their pathologic meaning. Perhaps the most significant feature of these newest studies is the fact that the fat-content of the blood of dogs is shown to be quite constant both for the individual and the species. The average figure for what may be called the fat-content of the blood under normal conditions, taken at varied times on samples collected twenty-four hours after the last feeding, was 0.6 per cent. The average variation of any animal from the average for all was only 7 per cent.; the greatest variation, 14 per cent. This plainly indicates that there is an efficient regulation. Bloor concludes that this constancy of fat values in the blood of dogs gives sufficient reason to expect a similar constancy in the normal blood-fat value of human beings, and indicates that blood-fat determinations would give valuable diagnostic information in certain conditions.

Feeding fat in the ordinary way caused an increase in the fat-content of the blood beginning in about one hour after feeding and reaching a maximum in about six hours. When the thoracic duct was tied there was no increase in blood-fat after fat-feeding. This does not necessarily prove that no absorption was taking place, but only that if any fat was entering the blood-stream by channels other than the lymphatics, it was being removed as rapidly as it entered.

In connection with recent attempts at the intravenous feeding of fats in the form of the fine emulsion furnished by egg-yolk,[4] it is interesting to learn that the fat in certain types of emulsions may disappear rapidly from the circulation after it is introduced directly into the blood-stream. Why there should be wide variations in their behavior is not yet clear. The point of chief import, we conclude, is the possibility of a rapid removal of even undigested fat to the storage or other depots concerned in fat metabolism.

It has long been understood that the amount of fat in the blood may be somewhat increased in fasting, because the fat is taken up from the fat deposits and carried to the various organs by the blood. The experiment has not always tallied with the theory, however. From Bloor's investigations it is not unreasonable to explain the differences hitherto observed—sometimes a high and again a low blood-fat content in starvation—by the relative availability of the stored fat and especially the fat in the temporary storehouses on the one hand and the rate of utilization on the other. For example, an animal which did not ordinarily show any increase in blood-fat in fasting, was made to exhibit the usual curve of increase of blood-fat in fasting by stuffing with fat-food for a week before the fast. Bloor's results thus plainly indicate that when food is withheld, the increase in blood-fat depends on the nutritional condition of the animal. Narcotics may also have a pronounced effect on the blood-fat content; but that is a topic which demands more study.

---

[1] The Sugar Content of Human Blood, editorial, THE JOURNAL A. M. A., April 4, 1913, p. 1228; Blood-Sugar in Diabetes, Current Comment, ibid., Aug. 9, 1913, p. 418; Variations in the Content of Sugar in the Blood, editorial, ibid., Jan. 10, 1914, p. 131; The Amino-Acids in the Blood, Current Comment, ibid., Feb. 21, 1914, p. 621; The Absolute and Percentile Amounts of Sugar in the Blood, editorial, ibid., Sept. 19, 1914, p. 1036.

[2] An Explanation of Lipemia, editorial, THE JOURNAL A. M. A., Oct. 3, 1914, p. 1208.

[3] Bloor, W. R.: A Method for the Determination of Fat in Small Amounts of Blood, Jour. Biol. Chem., 1914, xvii, 384; Studies on Blood-Fat. I. Variations in the Fat-Content of the Blood under Approximately Normal Conditions, ibid., 1914, xix, 1.

[4] Schott: Deutsch. Arch. f. klin. Med., 1913, cxii, 403.

RURAL SANITATION

In 1909 the Commission on Country Life reported that "the farm should be the most healthful place in which to live, and there are numberless farmhouses, especially of the farm-owner class, that possess most excellent modern sanitary conveniences. Still it is a fact that there are also numberless other farmhouses, especially of the tenant class, and even numerous rural schoolhouses, that do not have the rudiments of sanitary arrangement. Health conditions in many parts of the open country, therefore, are in urgent need of betterment."

The problem of rural sanitation calls for consideration from two points of view: that of the possible danger of objectionable surroundings and unhygienic practices to the individual on the farm and his immediate neighbors; and that of the menace which insanitary farm conditions may present indirectly to urban communities. The sanitary relation of the farm to the city involves almost entirely the possibility of the spread of actual infection from country to city through milk, meat, vegetables and other farm products. A few years ago it was not uncommon for farmers to meet with a spirit of resistance any suggestion of hygienic improvements which were planned to diminish the danger of the farm as a starting point for the spread of disease. At times there has actually been aggressive opposition to proposed regulations the object of which was defensible from every unbiased point of view. The milk industry could furnish many instances in recent times of actual refusal on the part of farm communities to supply an essential food to the market under conditions that to-day are everywhere accepted as rational and necessary.

A few years ago the apparent indifference of the rural community to the needs of the urban population dependent on the farm for a healthful food supply could be excused on the basis of ignorance. To-day there is no excuse for apathy toward the teachings of modern sanitation. The campaign of education that is being waged throughout the United States by all manner of forces—municipal, state and national—by agencies connected with the Public Health Service, the Department of Agriculture, the experiment stations, the state universities, boards of health, civic organizations and the public press ought to win its way into every rural home that has any ties whatever with civilized communities.

The better understanding of the farmer's unavoidable responsibility toward his distant fellow citizen has in turn reacted to advantage in respect to his own environment. As a recent writer has expressed it: Fortunately with the general advance in rural standards of living in recent years there has come about a considerable awakening of interest among farmers and representatives of rural communities along these lines, as well as among the public as a whole. Modern methods of communication and travel have to a great extent brought the rural districts into closer relationship with the towns and cities. The farmer learns of the improved general health and reduction in the death rate resulting from the decrease of the ravages of contagious disease, which has been brought about through the introduction of such preventive measures as a sanitary water supply, proper methods for the disposal of sewage and garbage, and mosquito and fly extermination, and wishes to avail himself of these benefits.[1]

The country medical practitioner well realizes the futile idealism of much that emanates from an urban desk. Sometimes the most elementary sanitary conditions offer puzzling problems when the expense and feasibility of the proposed remedies are carefully studied. Too often the city reformer forgets the enforced monotony of diet, the lack of recreation and the excessive hours of work which farm conditions may entail in some sections and at certain seasons. There are social as well as economic forces involved in farm life. The reform of rural sanitation, which is undeniably called for in some parts of the United States, must not overlook the personal element so strong in the country dweller. With the exigencies of the situation kept in mind the campaign for improvement in rural sanitation is likely, in the words of a recent writer, to do much to make farm life at once more profitable, more healthful and more attractive, and by so doing contribute to safeguard the food supply, and therefore the health and the efficiency of the nation.

Current Comment

FUNCTIONS OF A CITY HOSPITAL

A pamphlet issued by the Department of Public Welfare of the City of Cleveland deals with the history, functions and possibilities of the Cleveland City Hospital. The following statement indicates that those in charge of this hospital have a clear conception of the invaluable service to the public which can be rendered by a great municipal hospital if properly conducted: "A municipal hospital is an institution of organized society provided by a city to care for the sick. It is but a medical means to a social end, and this end — public welfare — must never be forgotten. The modern hospital has outgrown the narrow field of boarding and treating sick people, and the time has come when a proper city hospital can no longer passively receive the sick from the community at large, without regard for the reason why they became sick, use them chiefly as material and often discharge them without the slightest interest in their convalescence and rehabilitation in wholesome living and working conditions. Hospitals more than any other social agency accumulate the evidence against the dangers to life in the community, dangers from contagion, from ways of living and from industry, and they must feel the responsibility to study this evidence and become leaders in the progress of prophylactic medicine. The idle convalescent is of no more value in a community than the bedridden and scarcely less expensive to support. It is not only charity and social service, but also sound economy for a city to supervise convalescence; to make it such that the patient can return to his work the sooner. A city hospital of to-day must continue to give to a community scientific care for its sick and must afford opportunities both for scientific investigation and for the education of physicians, nurses and orderlies. But above all, it must, through its social service work and through cooperation with all other community social agencies, give a watchfulness over public health and results that will result in more days of life, work and happiness to its citizens."

---

[1] Editorial, Expt. Sta. Rec., 1914, xxx, 701.

DO "PATENT MEDICINE" INTERESTS CONTROL THE PRESS?

Most of our readers are familiar with the "Great American Fraud" articles by Samuel Hopkins Adams that appeared in *Collier's* a few years ago. In preparing the matter for the "Great American Fraud," Mr. Adams visited "patent medicine" factories, got in touch with nostrum promoters — and their dupes — and in various ways investigated the subject with the utmost thoroughness. In connection with that series there were one or two articles showing the sinister control that the "patent medicine" interests exercised over the press of the country. The notorious "red clause" in advertising contracts, by which the "patent medicine" makers hoped to enlist the aid of the newspapers as unpaid lobbyists against any proposed health legislation that might interfere with the sale of nostrums — this is history. That the "patent medicine" interests still exercise a baneful control over the press is evident from the facts brought out in a letter from Mr. Adams published in this issue.[1] In his latest novel, "The Clarion," Mr. Adams has put in vivid and gripping form the information he has gained as a newspaper man, and his wide and yet detailed knowledge of quackery and the "patent medicine" business. It is not necessary here to give a synopsis of "The Clarion"; this was done when the book was reviewed recently.[2] It is sufficient to remind our readers that the novel deals with the problems that beset a newspaper that tries to be honest with its patrons. The chief character in "The Clarion" is a "patent medicine" manufacturer, one "Dr. Surtaine," whose nostrum "Certina" brought him wealth and power. Readers familiar with the history of contemporary quackery will recognize in Surtaine a composite picture of several individuals who have amassed wealth through the sale of worthless, fraudulent or dangerous nostrums. If one wished to clothe the intangible, to particularize the general, to materialize the immaterial, he could, as fancy led him, recognize in Mr. Adams' hypothetical nostrum "Certina," such products as "Swamp Root," "Peruna," or a score of others. It is evident from Mr. Adams' letter that the newspapers and book-store proprietors of Binghamton, N. Y., have materialized "Dr. Surtaine's" preparation in the notorious fraud, "Swamp Root." Such might have been expected. But it is a little disheartening to those who were hoping against hope that the newspapers were throwing off the yoke of the "patent medicine" makers, to find that there are still newspapers so recreant to their public trust as to refuse to advertise a novel because it may throw an unpleasant light into the dark places of a local industry.

FURTHER "PATENT MEDICINE" INFLUENCE

In connection with the instance cited above we give another example of the power wielded by the "patent medicine" interests. The story runs that a traveling exhibit sent out by a state board of health contained, among other material, some educational posters on the "patent medicine" evil. One of the placards exposed the fraudulence of a "patent medicine" manufactured and having a large sale in that section of the country through which the exhibit was going. Soon after the traveling exhibit had left the town in which this particular medicine was made, the official in charge of the exhibit received a telegram from a railroad official of another state requesting that the particular exhibit in question be removed from the car because it reflected adversely on a certain one of the railroad's patrons. As the request practically amounted to a demand, the exhibit objected to was removed. This particular incident we may take up in greater detail at some future time; at present it is referred to only to show that the influence wielded by those who have made their millions out of the great American fraud is as real as it is malevolent.

BARE WALLS AND MONOTONY

The bare white walls of the modern sanitary hospital have a certain monotony which, in many instances, forms a dull and dreary aspect to the sick person who must lie for the larger part of every day and find nothing else in his horizon. Brayton[1] refers to a patient who, when he left the hospital, said: "Sister, tell the next patient who occupies this room that there are 391 fleurs-de-lis in the decoration on the wall." Another patient reported to his friends that his room was well aired by two large windows, that there were three fly-specks on the big white walls, and the brass door knob was most interesting. In Indianapolis two units of the City Hospital, known as Burdsal units in honor of the founder, have been decorated so adequately that the foregoing criticism does not apply. Some of the best artists — men and women of national fame — have collaborated in the work. Mr. William Forsythe is general director of the decoration program, and is personally decorating one of the wards for the children. In the children's dining room Mr. Otto Stark has portrayed a "festival of toys." In one of

---

[1] Page 2062.

[2] See The Journal, Oct. 10, 1914, p. 1316.

---

[1] Brayton: Indianapolis Med. Jour., 1914, xvii, 497.

the corridors of the children's wards Mr. Carl Graf has illustrated the story of Cinderella. Mr. Weyman Adams, a well-known portrait painter, has included twenty-four portraits of Indianapolis children placed medallion-like in panels between the windows. In the sun parlor the best-known children stories have been depicted in colors by Mr. Clifton Wheeler. In the women's wards work is being done by Mr. T. C. Steele, Mr. J. Otis Adams, Mrs. J. E. Bundy, Mr. William E. Scott and Miss Dorothy Morlin; corridors and panels are being made by Mr. Martinius Anderson and Mr. G. Gaus. A large bronze fountain is being made by Mrs. Myra Richards for the roof garden playground, and a bronze tablet, commemoratory to the donor, by Miss Helene Hibben. A visiting artist, looking over the walls already covered, remarked that there were only two buildings in this country that these decorations recalled, one of them the Boston Public Library, the other, the Congressional Library. The idea, while not wholly unique, has here been carried out with a quality and completeness probably not equaled elsewhere. As Brayton quotes, "These beautiful and peaceful decorations 'may minister to a mind diseased and pluck from memory a rooted sorrow.'" The achievement is worthy of being widely copied if other communities can enlist a similar cooperation of artists.

THE SIGNS OF DEATH FROM FREEZING

It is not clearly understood how severe cold causes death. A variety of causes have been assumed to be at work — accumulation of carbonic acid, paralysis of the vasomotor centers, loss of heat, accumulation of blood in the heart, anemia of the brain, destruction of red corpuscles — all of which tends to show that we really do not know anything definite as to the precise cause. The signs of death caused by exposure to cold are also poorly understood. This is especially unfortunate in view of the fact that in all northern countries cases of death from freezing frequently present themselves for investigation. In Russia, for instance, at least several hundred persons die each year from the immediate effects of severe cold, and in the Medicolegal Institute in Moscow about 2.5 per cent. of all post-mortem examinations concern deaths from freezing. Recently Krjukoff[1] has published the results obtained from a study of the Moscow material with a reference to the signs of death from freezing, and he finds that in 40 per cent. of the cases the presence of swollen and glistening bluish-red or bright scarlet-red spots in the skin of the ears, hands or feet were present and that such spots are reliable signs of the action of cold on the living skin. Cerebral and pulmonary hyperemia and edema were frequently found, and the heart commonly was overfilled with blood: but these appearances were not distinctive. Hemorrhagic erosions were found in the stomach in 72 per cent. Krjukoff regards the absence of glycogen and sugar in the liver as a good sign of death from freezing, particularly valuable because both these substances are present in the liver in acute alcoholism.

---

[1] Krjukoff, Alex., Vierteljahresschr. f. gerichtl. Med., January, 1914.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

ALABAMA

Personal.—Dr. Wesley Earl Drennen, Birmingham, has sailed for Europe.——Dr. George H. Fonde, Mobile, has been appointed a trustee of the Alabama-Bryce Hospital for the Insane, Tuscaloosa.

Fire in Infirmary.—Fire at the infirmary of Drs. Luther L. and Robert S. Hill, Montgomery, November 7, caused serious damage, and necessitated the removal of all patients from the building. This was accomplished without casualty.

Tick Eradication.—Dr. J. A. Kiernan is working on this task for the federal government. Hale, Marengo and Henry counties voted for tick eradication in the last election. Wilcox County is to furnish funds for tick eradication work. Limestone County has entered into a contract with the federal government to assist in tick eradication beginning Feb. 15, 1915. The Alabama Live Stock Sanitary Association has also entered into a tick eradication contract.

Malarial Survey.—Surgeon Rudolph H. von Ezdorf, U. S. P. H. S., has recently been transferred from Mobile to New Orleans and delivered an address at a meeting of the Mobile County Medical Society on "Malarial Survey," in which he outlined the ways in which surveys are made by the public health service in the various cities affected by malarial mosquitoes. A resolution, commending the faithful work of Dr. von Ezdorf during the four years of his stay in Mobile, was adopted by a rising vote.

CALIFORNIA

Want Another Tuberculosis Hospital.—The committee on public health of the San Francisco Medical Society has recommended to the supervisors that the present tuberculosis hospital be used for bed cases only, and the city requires a sanatorium for ambulatory and hopeful cases of tuberculosis.

Personal.—Dr. Frank J. Bailey, Red Bluff, has been elected coroner and public administrator of Tehama County.—Dr. Howard Somers, San Francisco, has returned from Europe.——Dr. Edward E. Dowdle has resigned as resident physician at the Oakland Emergency Hospital and will locate in Hayward.

FLORIDA

State Laboratory Opened.—The State Bacteriological Laboratory at Tallahassee was opened last week.

State Colony for Epileptics.—A campaign for the establishment of a state colony for epileptics in Florida was started in August last, by a series of popular articles which appeared in the Jacksonville *Times Union* in the form of an appeal to the State Board of Charities and Corrections and the charitable and philanthropic people of the state.

ILLINOIS

Life Memberships Conferred.—At the forty-first annual meeting of the North Central Illinois Medical Society held in Wenona, December 1 and 2, certificates of life membership were conferred on Dr. George Allen Dicus, Streator, president of the association; Dr. Thomas H. Trainor, Aurora, and Dr. Thomas W. Burrows, Ottawa.

Personal.—Dr. Enos S. Spindel, Springfield, has been appointed a member of the State Board of Health, vice Dr. James J. Hassett, McLeansboro, deceased.——Dr. Thomas N. Miller, Rockford, who was seriously injured in a runaway accident November 2, is reported to be convalescent.——Dr. Halley A. Smith, Rockford, has started for France where he expects to serve in the army medical corps.

Chicago

Civil Service Examination.—The County Civil Service Commission announces that it will hold an examination the last week in January, 1915, for director of the Psychopathic Institute in connection with the juvenile court. The position carries a salary of $5,000 a year and the examination is to be as to the mental and physical condition of delinquent and dependent children who appear in the juvenile court.

Free Aid to Working Women.—The following women physicians of Chicago have offered to give their services free to working women and also to help in the municipal dance halls. Drs. Sadie B. Adair and Lindsay Wynekoop have been assigned to the south side dance halls; Drs. Blanche Bergman and Agnes Mikkelsen to those on the west side, and Drs. Effie L. Lobdell and Clara P. Seippel to the north side dance halls.

Health Exhibit Opened.—The Chicago Health Department, Board of Education, Municipal Tuberculosis Sanatorium, United States Bureau of Food Inspection, United States Bureau of Animal Industry and Illinois State Board of Health have united their efforts with those of many private organizations of Chicago and elsewhere to produce a new type of expedition picturing health from the standpoint of the common interest. This expedition was opened to the public at the City Club, December 1, and includes all phases of municipal health problems, infant welfare, bad lighting, inadequate school inspection, etc.

LOUISIANA

Tribute to Dr. Dowling.—The New Orleans *State*, in its issue for November 15, says editorially:

> "When the Southern Medical Association elected Doctor Oscar Dowling of Louisiana to its presidency, that body bestowed a merited honor. Dr. Dowling, as president of the State Board of Health, has brought to his work energy, courage, intelligence and enthusiasm. He has set a standard in Louisiana for the discharge of the duties of public office. He has won for the health department of Louisiana a reputation equalled by few and surpassed by none other of the like departments in other commonwealths. The good this has done for Louisiana, in correcting false impressions abroad, in remedying conditions on which some truthful unfavorable impressions were based, has been incalculable. Many thousands of Louisianians will live longer, live more effectively for themselves and for their communities, because of the work Dr. Dowling has done, and the interest he has stirred in cleanliness, sanitation, and decent and right living."

MARYLAND

New Diet Kitchen.—The new diet kitchen which has been presented to the Hebrew Hospital by Mr. Wm. M. Benesch, was formally turned over to the hospital on November 25. The gift was accepted on the part of the institution by Dr. Harry Adler, Baltimore, president of the hospital board. The kitchen is equipped for the preparation of special foods and is also a school for the instruction of nurses in training in the science of dietetics.

Portrait Presented to Faculty.—A life-sized oil painting of Dr. Samuel Clagett Chew, dean of Baltimore physicians, formerly president of the Medical and Chirurgical Faculty of Maryland, a member of the Board of Regents of Maryland for more than forty years, was presented to the faculty November 20, by the Baltimore City Medical Society. The ceremony took place at Osler Hall. The presentation addresses were made by Drs. Charles W. Mitchell and William S. Thayer. Dr. Randolph Winslow, president of the faculty, accepted the portrait on behalf of the faculty.

MASSACHUSETTS

Dental Infirmary Dedicated.—The Forsyth Dental Infirmary for Children, Boston, was formally dedicated November 24. The infirmary is a gift to the city of Boston from John Hamilton and Thomas Alexander Forsyth in memory of their brothers, James Bennett and George Henry Forsyth, and has an endowment of $2,000,000.

Personal.—Dr. John J. Dowling has been appointed superintendent of the Boston City Hospital, vice John C. McCollom.——Dr. H. J. Gosline has been appointed assistant physician at the Danvers State Hospital.——Dr. Charles A. Reese, West Newton, was knocked down by an automobile truck November 22 and painfully injured.

Health Hints to Public.—The annual course of free public health talks given under the auspices of the Robert Dawson Evans Memorial Department of Clinical Research and Preventive Medicine began November 17, at the Memorial Building in Boston, when Dr. Allen J. McLaughlin, the new health commissioner of the state, gave a talk on "The Importance of Public Education in the Prevention of Diseases." The talks will continue to be given each Tuesday evening until May 25, 1915.

MICHIGAN

Tuberculosis Building Opened.—The Anna T. Dodge Children's Building of the Detroit Tuberculosis Sanatorium, was formally opened to the public on Tuberculosis Day, November 29.

Diphtheria General Throughout the State.—Dr. John L. Burkart, Lansing, secretary of the State Board of Health, says that diphtheria is general throughout the state, over fifty cases having been reported from Ithaca alone. Schools have been closed at Bay City and other places.

MINNESOTA

State Cancer Committee.—Dr. William J. Mayo, Rochester, has been appointed chairman of the Minnesota State Committee of the Medical Society for the Control of Cancer. He has associate with him on this committee, Dr. James E. Moore, Minneapolis, and Dr. Warren A. Dennis, St. Paul.

Personal.—Dr. Carl J. Holman, Mankato, has been appointed a member of the State Board of Medical Examiners, succeeding Dr. John W. Andrews, Mankato, who was elected to the state senate at the November election.——Dr. Charles A. Stewart is reported to be ill at his home in Duluth.

Red Cross Christmas Seal Campaign.—The Minnesota Public Health Association, which has charge of the sale of Red Cross Christmas seals in the state, announces a series of prizes to districts and district managers varying from the services of a baby welfare nurse to pennants or banners in consideration of the sale of the Christmas seals.

Bass Lake Preventorium.—The League of Protestant Women of Minneapolis have purchased Oakwood Inn, Bass Lake, for $15,000, and will convert the inn into a sanatorium for the prevention of tuberculosis in children. The institution owns eleven acres of land and is located on the lake shore. Dr. Longstreet Taylor will be in charge of the sanatorium.

MISSISSIPPI

Pellagra Excluded from Natchez Hospital.—The board of trustees of Natchez Charity Hospital, November 11, decided, in view of a reduced appropriation, to exclude all pellagra cases. The Vicksburg Emergency Hospital had previously taken similar action.

State Hospital Overcrowded.—The Mississippi Insane Hospital, Jackson, showed an average of 1,527 for the month of October. The appropriation made by the legislature was based on an average of 1,450 at a per capita of $140 per annum. Thus the institution is caring for 77 patients more than has been provided for by the state.

Free Pasteur Treatment.—By an arrangement perfected by the secretary of the Mississippi Board of Health and the United States Public Health Service, the State Board of Health announces that it will treat all cases of rabies free of charge, provided the persons suffering from the disease are unable to take treatment at the Pasteur institutions located at New Orleans or Memphis. The only stipulation is that the treatment be administered by an official of the State Board of Health.

NEW YORK

County Tuberculosis Hospital.—Suffolk County has voted in favor of a tuberculosis hospital and has appropriated $50,000 for its establishment.

Mental Defectives.—In a recent address Robert W. Hebberd, secretary of the state board of charities, urged an extension of the state institutions for the care of feeble-minded persons. He states that a recent investigation shows that there are nearly 9,000 mentally defective persons in the state outside of New York City who are unsuitably cared for in their homes and in almshouses. A survey of New York City is now being made. A bond issue is recommended as the best means of raising funds to make provision for these unfortunates.

New York City

Roentgenologists Incorporate.—A certificate of incorporation was granted, November 14, to the New York Roentgen Ray Association with the following directors: Drs. I. Seth Hirsch, George Sloan Dixon, Adoniram Judson Quimby, William A. LaField and Archibald P. Evans.

The Common Drinking Cup in Theaters.—An inspection of the theaters of the city has just been completed with reference to the use of the common drinking cup. Of the 429 theaters visited only 16 violations of the law were discovered and 14 of these were in Brooklyn.

Red Cross Seals on Sale.—A large committee composed of citizens of Manhattan has been organized and is conducting a campaign to dispose of 3,000,000 Red Cross Christmas Seals, the proceeds of which go to the Committee on Prevention of Tuberculosis of the Charity Organization Society. Special efforts are being made to bring the importance of this home charity to the attention of the public.

Cancer Research Report.—The report of Dr. Francis Carter Wood, director of the George Crocker Cancer Research Fund, has just been submitted to the College of Physicians and Surgeons of Columbia University. The report reviews the research work of the past year and contains a special warning to physicans against the wide use of colloidal silver salts by doctors in treating various diseases. The results of these investigations are to be published for the benefit of practitioners throughout the country. Dr. Wood states in the report that the laboratory should in time become a central bureau for information on any phase of the cancer question. With this idea in view, a large private collection of slides, amounting to some 3,000 separate specimens, has been turned over to the fund by the director. Several well-known pathologists of Europe have signified their willingness to supply the Crocker fund with a series of specimens illustrating rare forms of tumors.

PENNSYLVANIA

Sanatorium Wing for Children.—The State Health Department has decided to devote the new west wing of the Cresson State Sanatorium entirely to children. The new ward which cost about $300,000 will have small wards, each containing eighteen beds, private rooms, play rooms, etc. The new wing will be ready for occupancy early in the spring.

State's War on Typhoid Reduces Mortality Greatly.—In spite of the recent outbreak of typhoid fever at Lehigh and of the fact that there are a larger number of cases of typhoid in the hospitals of the state at present, there has been a remarkable decline, both in the death-rate and morbidity since 1906, when an active fight against the spread of the disease began in Pennsylvania.

Personal.—Dr. Fred L. Grander, Forest City, fell on an icy sidewalk November 20, fracturing his left shoulder.——Dr. Robert W. Stewart, Pittsburgh, has returned from Europe. ——Dr. Frank V. McConkey, York, has been appointed a medical inspector under the division of Industrial Hygiene of the State Department of Labor and Industry.——Dr. William F. Muhlenberg, Reading, has been elected vice-president of the Pennsylvania-German Society.——Dr. Jesse H. Hazlett, Vanderbilt, is under treatment in the Allegheny Hospital, Cumberland, as the result of a skull fracture received in an automobile accident near Cumberland, November 9.

Philadelphia

Mütter Lecture.—The Mütter Lecture on Surgical Pathology for 1914 was given in the Thompson Hall of the College of Physicians of Philadelphia, December 4, by Dr. Fred H. Albee, New York City, on "The Fundamental Principles Involved in the Use of Bone Grafts in Surgery."

Personal.—Dr. Thomas McCrae has been appointed consulting physician at Girard Hospital.——Dr. Edward K. Tullidge sailed for Europe to serve in the Austrian Field Hospital.——Dr. John B. Carnett has been appointed surgeon at the Philadelphia General Hospital to succeed Dr. Edward Martin, resigned.

Medal to Dr. R. Tait McKenzie.—A silver medal in recognition of his work in athletic sculpture has been sent by King Gustavus of Sweden to Dr. R. Tait McKenzie, physical director at the University of Pennsylvania. The medal bears on one side the likeness of the King and on the other the Royal Arms of Sweden.

Curtin Medical Scholarship.—An effort is being made by the Philadelphia Alumni Society of the Medical School of the University of Pennsylvania to complete the fund for the purpose of endowing a scholarship in the medical school of the university in the name of the first president of the society, Dr. Roland G. Curtin. Subscriptions to the fund should be sent to Dr. L. H. Adler, Jr., 1610 Arch Street, Philadelphia.

News of Medical Institutions.—The campaign fund for the hospital to be known as the Providence General Hospital, Germantown, has reached over $29,000. Fifty thousand dollars is necessary to start the building of the first wing on the 7-acre property at Wissahickon Avenue and Lincoln Drive. ——about $1,300 was contributed November 18, "Donation Day" at the Children's Hospital, which receives no money from the city or state.

CANADA

Montreal Hospitals Seek Financial Aid.—The General, Western and Notre Dame hospitals of Montreal have appealed to the board of control of that city for funds to carry on their work. It was pointed out that the hospitals would have to meet a combined deficit at the end of the present year of $84,000.

University Professor Dies.—G. R. Mines, M.A., professor of physiology at McGill University, Montreal, died in his laboratory, November 7. Professor Mines had been experimenting on himself regarding the phenomena of the heart action and respiration and it is believed, lost his life while engaging in experimentation of this nature.

Decrease of Drinking in Canada.—Canada produced in the fiscal year of 1914, 6,972,583 proof gallons of spirits as compared with 6,458,452 in the previous fiscal year. The per capita consumption of spirits was 1.061 gallons as against 1.112 in the previous year. The average consumption has, however, been going up in Canada since 1886 when it was only .711 per capita. Canadians are drinking more beer, the consumption per capita being now placed at 7.200 as compared with an average of 3.840 in the last four decades. There has been little decrease in the average consumption of wines which is now .124 as compared with the previous average of .119. The consumption of tobacco per head is now 3.711, a little less than the previous figure of 3.818.

Medical Reciprocity with Great Britain.—The action of the home authorities in refusing commissions to Ontario graduates to serve in either the British army or navy unless they are able to comply with the regulations of the General Medical Council has again precipitated the whole question of medical reciprocity between the provinces of Canada and the home land. The Dominion Medical Council has, as yet, not established any measure of medical reciprocity; the eastern provinces have Quebec, New Brunswick, Nova Scotia and Prince Edward Island. It is stated that the executive of the Ontario Medical Council has refused to call a special meeting of council looking toward immediate reciprocity with Great Britain, on old grounds which are well known.

Progress Made in the Tuberculosis Campaign.—Since March, 1913, nine additional institutions for the tuberculous have been opened in different parts of Canada—one at Ottawa; Brantford; Mount Sinai at Ste. Agathe, Quebec; Windsor; River Glade, N. B.; Halifax; The Preventorium, Toronto; Queen Mary Hospital for Tuberculous Children, Weston, Ont.; The Connaught Home for Nurses at the same place; the Preventorium at London, Ont. Extensive additions have also been made to the Provincial Sanatorium at Kentville, N. S.; the Freeport is about ready in Waterloo County, Ont.; the Provincial Sanatorium at Qu'Appelle, Sask., is being erected. Prince Edward Island and Alberta are also making moves in the same direction. Calgary has voted $30,000 for a municipal hospital for advanced cases, and Quebec City has also raised over $60,000 for the same purpose. In twelve sanatoria reporting on the cost of maintainance, the average cost of each patient per day is $1.55.

GENERAL

Health Officer Appointed.—Lieutenant Douglas W. McEnery, M. C., U. S. A., has been appointed special health officer of the city of Panama.

Error in Article by Dr. DeBuys.—In the article by Dr. L. R. DeBuys, entitled "Amebic Dysentery in Children," printed in The Journal for November 21, p. 1806, in table 2, column headed "Ameba," the dates February 12 to 16, there should be a plus sign indicating that ameba were found on these dates.

Duluth and Superior Physicians Meet.—At the annual meeting, November 18, of the Interurban Academy of Medicine, whose membership includes physicians of Duluth, Minn., and Superior, Wis., Dr. Henry A. Russell, Superior, was elected vice-president; Dr. Archibald L. McDonald, Duluth, secretary-treasurer.

Experimental Biologists to Meet.—The federated meeting of the Southern Experimental Biologists comprised of The American Physiological Society, American Society of Biological Chemists, American Society of Pharmacal and Experimental Therapeutics and the American Society of Experimental Pathology will hold its next meeting at the Washington University Medical School, St. Louis, December 28-30.

Virginia University Alumni Organized.—At the meeting of the Southern Medical Association, the University of Virginia Medical Alumni organized with the object of advancing the interests of the University of Virginia Medical School. The following officers were elected: president, Dr. Hugh H. Young, Baltimore; vice-president, Dr. John Staige Davis, University, Va.; secretary, Dr. Seale Harris, Mobile, Ala., and treasurer, Dr. Thomas V. Williamson, Norfolk, Va.

Meeting of Tri-State Physicians.—At the thirty-first annual meeting of the Tri-State Medical Association of Tennessee, Arkansas and Mississippi, held in Memphis, November 17 to 19, the following officers were elected: president, Dr. William P. Hicks, Earle, Ark.; vice-presidents, Drs. Jacob L. Hare, Wynne, Ark.; B. Vernon Dickson, Covington, Tenn., and Ephraim R. McLean, Cleveland, Miss.; secretary, Dr. James L. Andrews, Memphis (reelected); treasurer, Dr. James A. Vaughan, Memphis (reelected).

Federal Foot-and-Mouth Quarantine Partially Lifted.—An order, to become effective November 30, has been issued, releasing from some restrictions of live stock quarantine certain counties in Wisconsin, Illinois and Iowa. Cattle from these counties may be shipped in interstate commerce for immediate slaughter and for feeding purposes, but may not be shipped out for feeding elsewhere. This release order is the first issued since the quarantine was ordered, and will be followed as soon as possible by similar orders lifting the quarantine in other localities. Confidence is felt that the epidemic is now under control and will soon be eradicated.

Medical Missionaries Meet.—In spite of the confusion in mission fields as a result of the war in Europe, the Sixth Inter-Denominational Medical Missionary Conference held in Battle Creek, Mich., November 17-20, was attended by 200 workers from home and foreign fields. The probable effect of the war on mission work was very generally discussed, the consensus of opinion being that a temporary withholding of mission gifts would be experienced, but that the final effect would be a broader brotherhood and a most salutary condition in mission work in general. The conference will meet again in 1915 in Battle Creek.

Bequests and Donations.—The following bequests and donations have recently been announced:

Howard Hospital, Philadelphia, $5,000 to maintain a free bed to be known as the Annie E. Ulmer bed; West Philadelphia Hospital for Women, a bequest of $1,000 by the will of the late Annie Mathews.

Bieur Cholim Hospital, Jerusalem, and Anniston Hospital, Anniston, Ala., each one-fourth and the National Jewish Hospital for Consumptives, Denver, one-half of the estate of L. H. Caplan, Anniston.

Charity Hospital, New Orleans. La., $1,250 by the will of Mrs. Ida P. Richardson, New Orleans.

Church of St. Luke and Epiphany, Philadelphia, a donation of $1,000 to start a fresh air fund; University of Pennsylvania, Philadelphia, about $1,000,000, to be divided among the library, hospital, for the maintenance of free beds, for the system of hydropathic treatment, the department of cutaneous medicine in the Medical School for the advancement of its work and the department of archeology and paleontology, by the will of Dr. Louis A. Duhring.

Maimonides Hospital, Chicago, an appropriation of $2,000 by the Federated Orthodox Charities of Chicago.

Harvard Medical School, $25,000, the income to be used for cancer investigation work; Massachusetts General Hospital, $25,000 for the endowment of a free bed by the will of Mrs. Endicott, Boston.

FOREIGN

Professor Erb's Fiftieth Professional Anniversary.—In October the well-known Heidelberg neurologist, Prof. Wilhelm Erb, completed the fiftieth year of his professional career. His son was one of the first to fall on the firing line, as already mentioned in these columns.

Death of Emmerich.—The death is reported of R. Emmerich, professor of hygiene at the University of Munich, author of numerous works on hygiene and epidemics, aged 62. His views on the importance of the nitrates in the soil as a factor in cholera were reviewed in The Journal, 1904, xliii, 640.

Decorations for Members of the Profession.—The grand cross of the Order of Alfonso XII has recently been presented to the professor of pharmacy at the University of Madrid, J. R. Carracido, who is also a senator, and the Isabella cross to S. Recasens, professor of gynecology at the same seat of learning. The decorations were conferred, the announcement reads, for distinguished services to the *cultura nacional.*

Death of Leading Italian Hygienist.—Our latest exchanges bring obituaries of Angelo Celli, aged 57, to whom Italy owes its present partial emancipation from malaria. He has long been professor of hygiene at the University of Rome, chief of the national board of health and senator of the realm, and to his initiative is due the government monopoly of quinin and its sale practically at cost in every post-office. He was also influential in legislation on the working hours for women and children, in the reclaiming of the marshes around Rome, and other public welfare works. In collaboration with Marchiafava, he published the first description of the meningococcus, and of certain phases of the malaria parasite, and was a frequent contributor to the literature on various topics of internal medicine. He was one of the leading scientists of the world invited to speak at the International Congress of Arts and Science held at the World's Fair in St. Louis in 1904.

WAR NOTES

American Hospital Opens in Petrograd.—An American hospital with a capacity of forty beds, the gift of the American colony in the city, was opened at Petrograd November 28.

More Red Cross Surgeons for Russia.—The American National Red Cross are sending two additional surgeons to reenforce the American Red Cross Hospital units already sent.

The Red Cross in Servia.—Dr. Edward W. Ryan, director of a hospital unit sent to Servia, states that surgeons are very scarce in that country and with about 50,000 wounded, the work is exceedingly heavy. The nurses are working from 8 o'clock in the morning until 7:30 at night.

Precautions Against Disease.—Folkestone is now practically the only port in England open to commercial and passenger business from the Continent, and the health officers at that port are taking unusual precautions to prevent the admission of disease into England from the war zone.

Work of the Japanese Red Cross.—The Japanese Red Cross has sent detachments of surgeons and nurses to Russia, France and England, and quantities of hospital supplies for Belgium and Servia. They have also equipped two hospital ships which are caring for the sick and wounded of Germany and Japan.

Needs of American Hospital.—Dr. James A. Blake, in charge of the American Ambulance Hospital, Paris, has cabled to Mrs. George Wharton Pepper, Philadelphia, that the following supplies are needed for the work of the hospital: surgical gauze, ice bags, hot-water bags, rubber gloves, bed pans, rubber sheeting, syringes, rubber tubing, underclothes, pajamas, abdominal belts, socks, mufflers, scarfs, etc.

Red Cross Units for Servia.—Two Servian Red Cross units, Nos. 2 and 3, sailed for Patras, Greece, on the *Finland,* November 21. The physicians in unit No. 2 are Dr. Ethan Flagg Butler, Rochester, Minn., director; Dr. S. H. Rodger, Knoxville, Tenn., and Dr. James F. Donnelly, New York City. The medical director of the Red Cross unit No. 3 is Dr. Ernest P. Magruder, Washington, D. C., who is assisted by Drs. Clapham P. King, Annapolis, Md., and Morton P. Lane, New Orleans.——Dr. Dean F. Winn, Atlanta, Ga., sailed on the same steamer to join the Russian Red Cross unit.

Proposed Exchange of Medical Prisoners.—The *Münchener med. Wochenschrift,* October 27, states that the organized physicians of Germany (Verband der Aerzte Deutschlands) have petitioned the Prussian state department and war department to request the ambassador from the United States to propose to the government of Great Britain that the physicians who have been taken prisoners by the contending armies should be allowed to return home. They ask that this should be done whether the medical prisoners are or are not of the age subject to military conscription. Our exchange comments that time alone will tell whether this attempt will be successful or not.

Medical Supplies to German Red Cross.—On board the steamer *Potsdam* which sailed from New York City, November 10, the following supplies were sent to the German Red Cross: ten cases of hospital clothing, 2,000 pounds of bandages, 100 bales of absorbent cotton and 6,000 yards of gauze; and for the American Hospital in Munich 1,000 pounds of bandages, 50 bales of absorbent cotton and 4,000 yards of gauze and ten cases of hospital clothing.——The *Rochambeau,* which sailed from New York, November 14, carried the following hospital supplies for the French Red Cross: 20,000 pounds of absorbent cotton, 20,000 bandages, 10,000 yards of gauze, 10,000 yards of starched gauze for splints, 10 gallons of iodin, 2 barrels of alcohol, 500 blankets and 20 boxes of hospital clothing.

Compulsory Insurance in Germany and Austria.—The war is playing havoc with the organized state insurance of workingmen against sickness and accident. As the insured breadwinners have been drawn into the army, they have stopped paying their regular monthly premiums, and the *Kassenkranken* find that their business is practically all outgo with little coming in. Each has been collecting for years a reserve fund, but if this should become exhausted, the insurance companies would have to suspend operations. They have cautioned the physicians in their service to be extremely economical with dressings, drugs, etc. At some points they have stopped sending the tuberculous insured for the regulation course of sanatorium treatment, and the medical profession is alarmed at the danger of the spread of tuberculosis in the homes when nothing comparatively is being done for bacilli-scattering tuberculous working people.

American Red Cross Units Located.—Unit G of the American Red Cross has been located at Kosel in Southeast Germany, near the borders of Russia and Austria. It is attached to a military hospital of about 800 beds and has about 700 patients in its care. Dr. Bial F. Bradbury, Norway, Maine, is in charge of this unit.——Unit I is in charge of Dr. Charles H. Sanders, Washington, D. C., and is located in Gleitwitz, about 30 miles from Kosel, in a theater that has been converted into a hospital with accommodations for about seventy patients.——The units sent to Russia are said to be stationed at Kiev, back of the line of the Russian army in Austria, Galicia.——Unit D has left the Haslar Royal Naval Hospital, Gosport, and has joined Unit F at the American Woman's War Hospital, Paington.——Unit K, in charge of Dr. Cary Snoddy, is located at Vienna, Austria.——The unit located near Pau, France, of which Dr. Reynold F. Kirby-Smith, Sewanee, Tenn., is medical director, writes that medical supplies are urgently needed there and that the unit is located in the Palais d' Hiver, which has been converted into a hospital.——Unit E, located at Budapest, of which Dr. Charles E. McDonald, Salem, N. J., is medical director, has been given a modern building with 200 beds and properly equipped for a hospital.

German Medical Officers at the Front.—The *Berliner klinische Wochenschrift* publishes a reply from Körte to some criticisms of the work of the medical officers in the field, in which he says that gangrene is liable to develop in a serious wound of the leg even under the most scientifically applied dressings. To say that the dressing caused the gangrene is a far-fetched claim. In the district in his charge, he says, he has been amazed at what the medical officers are able to accomplish. In every field hospital and medical corps he has found at least one and generally several trained surgeons. "The task of applying the dressings and getting the men to bed (lying on straw), with scant assistance, is a hard one even when there are only a few hundred wounded. But when the wounded number thousands, the task is beyond human powers to accomplish it all. Whatever is humanly possible is done. It is easy for those at home to criticize, but it would be hard to do any better. Our work is not light, and it takes nerves of iron. In regard to the Belgian physicians, I have heard only praise, and I have seen much of their work. Our German wounded do not require aid of Belgian surgeons now, as they are all cared for in German field hospitals; there are five now in and around Brussels. The leaders among the Belgian surgeons, Depage, for instance, are faultless." [It will be remembered that Professor Depage here referred to presided at the Fourth Congress of the International Society of Surgery held at New York last spring. It is especially appropriate, considering what has followed since last April, to quote the first few lines of his opening address: "The first three meetings of the International Surgical Society took place in Belgium. We gave the preference to a neutral country so as to clearly define the scientific and at the same time the fraternal character of our association. It is not necessary for me to tell you that it is the privilege of our little Belgium to offer a meeting place to the learned men of all nationalities, covered by Europe herself with the shield of peace and liberty."]

LONDON LETTER

London, Nov. 18, 1914.

The War

There are being trained in this country 1,250,000 men for the new army, and recruits continue to be enlisted in large numbers every day. For a few days a lull occurred in the large number joining, but the outcry of the authorities that more men were still wanted at once restored matters. A movement is also on foot for the formation of defense forces from civilians who cannot join the army, but desire to defend their homes in the improbable event of an invasion. The government has been asked to say what should be done so that those willing to take up arms may ensure the rights of combatants for themselves. They have replied that the matter is under consideration. No doubt they are for the time too busy with the more pressing problem of the new army to attend to a new organization. Every means is being taken to safeguard the health of the recruits, mostly very young men. The public is appealed to not to show their friendliness for the soldiers in the usual manner of giving them intoxicating drinks, and the saloons are compelled to close at 10 p. m. instead of the usual hour, 12. Arrangements are being made for lectures to the recruits on the dangers of venereal disease.

The Health of the Troops in the Field

All the reports seem to show that the health of the troops in the field is excellent and that disease has not yet become a factor in invalidity to any extent. Typhoid fever has been mentioned in German reports and cholera in Austrian, but we appear to have had no experience with either disease. The illnesses most frequently mentioned in our reports are pneumonia and rheumatism—natural results of the prolonged exposure to cold and wet in the trenches. Cases of dysentery have occurred, but not in any numbers. Possibly no army in the field has ever before had its wants so well supplied as ours. Our lines of communication, including the sea, have never been even threatened, so that ample supplies of all kinds have been insured. At the front they are conveyed to the troops by a well-organized system of motor transport. The soldiers are so well fed that they have often been able to give from their abundance to the destitute French and Belgians flying from the invaders. With the approach of winter our women are preparing large quantities of woolen garments to send to the soldiers. The queen, who has organized this movement, has made an appeal for 300,000 body belts and pairs of socks, which has met a ready response. The Indian soldiers have not been forgotten, and a special fund is being organized for their benefit.

Consultants to the Royal Navy

The appointment of consulting physicians and surgeons to the army at the front has already been announced. The following well-known consultants have been appointed to the navy: Sir W. Watson Cheyne, Mr. G. R. Turner, Mr. Arthur Edmunds and Mr. C. H. M. Hughes (Naval Hospital, Chatham); M. G. Lenthal Cheatle, Dr. H. D. Rolleston and Mr. C. W. Morris (Naval Hospital, Haslar); Mr. Raymond Johnson (Naval Hospital, Plymouth); Sir Alfred Fripp and Dr. D. A. Shields (H. M. Hospital Ship *Sheelah*), and Sir William Macewen.

The British Red Cross

This society has now organized in Great Britain 359 hospitals containing 11,730 beds, as well as despatched surgeons, nurses and material of all kinds for the sick and wounded to France. It has also acquired a steam yacht of 380 tons for a hospital ship which will have twenty-one beds for private soldiers and three separate cabins for officers.

Appeal from the French Red Cross

An appeal for motor cars and funds for their upkeep has been made on behalf of the French Red Cross and has received the influential support of the queen and others. It is pointed out that the front held by the French troops is at least six times as long as that held by our own. With less population than ours the French have nearly ten times more soldiers in the field. Since nearly the whole of the active male population of France is under military orders, there is hardly any one left to whom the French authorities can appeal for more voluntary assistance, now that the supply of French motor cars has been used up. Belgium and France have supplied the battle ground for a war which has not yet inflicted any of the horrors of invasion on England, and the districts devastated by Germany are precisely those which, in coal fields and in beet sugar, are among the wealthiest in France, so that the damage done already is equivalent to the war indemnity paid by France in 1871. When cars are lent the owners can themselves drive and bring their own mechanic, can themselves drive and be provided with a mechanic, or can send their cars alone. The French Red Cross will arrange the cars in units of six, so that a group of half a dozen friends can work together if they wish. A central depot in London is being arranged for the committee, where all cars offered will be inspected.

The Wounded at Home

Though the wounded are distributed in the hospitals throughout the length and breadth of the land, and hospitals have been improvised everywhere for their reception, so great is the number now that difficulty is beginning to be felt in the accommodation of ordinary hospital cases. A Dublin surgeon, Sir Thomas Myles, points out that the recent arrivals of wounded soldiers from France have taxed the general hospitals to their full capacity. He suggests the immediate erection of a temporary hospital capable of holding a thousand beds. Last week 700 wounded were landed in Dublin. The cases are more serious than those received earlier. Most of the patients are suffering from septic wounds, more or less serious, but comparatively few show any signs of general sepsis. The infection generally appears to be of *Staphylococcus aureus*, though a certain number of wounds have *Bacillus pyocyaneus* present.

Effect of the War on the Medical Schools

As stated previously, the war has had the effect of greatly diminishing the number of students in the medical schools, because some have gone to the front as dressers and others have joined the fighting ranks. Against this, there has been a gain in another direction. Medical students among the Belgian refugees; and Russian and Japanese students who were studying in the German schools, but had to leave in consequence of the war, have been admitted. This novel experience has caused a difficulty in that one group of students has to be addressed in French, while Russians can be spoken to only in the German language. Cambridge University is giving hospitality to the expatriated. Unofficial courses are being given there to refugee students by eleven Belgian professors from Louvain. Facilities are also given for students who understand English for attendance at the ordinary courses. Assistance is being given to those unable to meet the moderate charges of four or five dollars a week for board and lodging, but to be eligible for such assistance and for free courses the students must submit themselves to a medical examination before the Belgian authorities, now in this country, and obtain a certificate of unfitness for military service. (The medical schools of Belgium were described p. 1751.)

The Treatment of German Prisoners

An official from the American embassy, by request of the German government, has visited the German prisoners in this country and made a report. He gives the daily rations already stated in The Journal, and adds that an ample supply of utensils for cooking is provided. The prisoners manage their own cooking. Each man has delivered to him a plate, knife, fork, spoon and mug. Each camp has a canteen at which fruit marmalade, sweets, biscuits, preserved meats, tobacco, etc., can be bought at moderate prices. The scale of prices is settled by the commandant. The regulation directs that each man is to receive two warm army blankets. The regulation is being carried out, but there has been some delay in the issue of the second blanket in certain cases. The issue of the second blanket to every prisoner will be completed as soon as possible, and before the coming of cold weather. In the roofed-in camps most occupants have wooden bedsteads, made by themselves from wood handed over to them for the purpose. The official heard the complaint made that not every prisoner had yet got a bedstead, as the wood provided had not quite sufficed to go round. He was told that the wood had been ordered and that the deficiency would soon be made up. Along with the wooden bedsteads, straw mattresses have been provided. In the open-air camps each tent has twelve inmates who sleep on the wooden floor of the tents on sack beds. Most of the prisoners made no complaint about the sleeping arrangements. Some few, who came from the better classes, missed their own soft beds to which they were accustomed. But they are allowed to buy what provision they please with their own money, and in most cases plenty of money is forthcoming. An outfit of good cut from warm practical cloth material, with underwear, shirts, socks, shoes, all of excellent make, pocket handkerchiefs, brush and comb has been given to all men needing them. Sufficient facilities are given for washing all clothing, and a copious supply of shower baths is forthcoming. In the roofed-in camps warm water baths are provided. Soap is supplied in unlimited quantity for cleaning purposes.

Death of Captain Angus Macnab

The death of Captain Angus Macnab, the ophthalmic surgeon to King Edward VII Hospital at Windsor, whose studies were pursued at Edinburgh, Moorfields, Freiburg and Vienna, the translator of Axenfeld's Bacteriology of the Eye and of Lolunaun's *Disturbances of the Visual Functions*, has given rise to deep regret, especially among the London Scottish Regiment, whose medical officer he was. Captain Macnab was with his regiment in the trenches rendering aid to the wounded, when, in a charge, he was fatally wounded.

Army Medical Casualties in the War

Since my last report the casualties among medical officers of the army have been: killed, 3; died of wounds, 3; wounded, 11; missing, 5; prisoners of war, 6. Captain H. S. Ranken, who died of his wounds on September 25, was awarded the most coveted distinction, the Victoria Cross, for valor, "for continuing to attend to wounded after his thigh and leg had been shattered" on September 20.

PARIS LETTER

Paris, Nov. 12, 1914.

Hughes' Electromagnetic Balance and Its Application to Military Surgery

The celebrated electrician, Hughes, once devised a little electromagnetic apparatus by which it is possible to discover the location of a metallic mass such as a piece of money or a bullet. This old invention seems to have been entirely forgotten until M. G. Lippmann, professor at the Faculté des sciences de Paris recently brought it to light at the Académie des sciences in the hope that it might be profitably employed in military surgery. It is simple, light, portable, inexpensive and easy to construct. It might be used in the numerous cases in which roentgenography is not available. It is composed of an electric battery, an interrupter and two little induction coils (Ruhmkorff without soft iron) of which the primaries are in the battery circuit and the secondaries are in series with a telephone, the receiver of which is held to the ear of the observer. The apparatus is so constructed that the opposing electromotor forces which act on the telephone are exactly equal, and, while they are in equilibrium, the telephone remains silent. If one of the coils is brought near a metallic mass, a sound is heard over the telephone. This is because induced currents arise in the metallic mass and react on the nearest coil but not on the other thus disturbing the electric balance. The sound of the telephone thus reveals the approach of the metallic mass. If the latter is magnetic (fragment of shell or German balls) the effect will be still more marked, since the magnetic mass reinforces the induced current in the nearest coil. The electromagnetic balance is therefore more sensitive to the approach of a German ball than of a French ball.

The Treatment of Tetanus by Large Doses of Chloral

November 4, Dr. Dammler, chief physician of the army, read a paper on this subject before the Académie de médecine. In 1889 he had occasion to treat a case of tetanus with chloral in doses of from 20 to 25 gm. per day. This procedure was then recommended by Professor Verneuil. At present Dammler administers a dose of 6 gm. of chloral every six hours until the patient is in such a state of torpor that all hyperexcitability from the tetanus is abolished. Professor Capitan recently employed Dammler's method with complete success in a particularly serious case of tetanus.

Services Rendered by Sanitary Dogs in the Present War

In previous letters I mentioned the attempts which have been made to train sanitary dogs and to supply our army with a sufficient number of dogs especially trained to search for the wounded (The Journal, Aug. 26, 1911, p. 751; Jan. 25, 1913, p. 299). From the beginning of the mobilization, the Institut de psychologie zoologique requested of the ambulance attendants to whom the sanitary dogs were entrusted brief reports on the conduct of their aids under fire. M. P. Hachet-Souplet, director of the institute, has just published some of the numerous letters which he has received on the subject. They are, in the main, very encouraging. No doubt it would be possible to criticize some details of the instructions given to the dog. Thus, the plan of having the dog bring back the wounded man's cap or handkerchief seems bad. Still the sanitary dogs are rendering important services and it is regrettable that there are not several for each ambulance.

An Association française pour le dressage du chien de guerre has just been formed. Already a large number of dogs have been given to it and sporting societies have opened their immense grounds for its use.

Belgian Physicians on French Ships

The minister of the interior has just authorized the employment of Belgian physicians on French merchant vessels during the war.

The Resumption of Courses in the Paris Medical School

The Faculté de médecine de Paris has just resumed its courses but its program is markedly abbreviated. All the courses for first- and second-year students are to be given under ordinary conditions. All the other courses are postponed until the summer semester. Courses in internal and external pathology, however, are to be given during the winter semester. The clinics remain open to the students.

Personal

November 10, the Académie de médecine elected as national associate Dr. Langlet, professor and director of the Ecole de médecine de Reims and mayor of that city.

Women-Doctors' Hospital at the Front

The hospital organized and controlled entirely by English women doctors at Paris has vindicated its efficiency. It has been placed officially under the War Office, and is permitted to draw rations and fuel from the army stores. One of the women orderlies has been appointed quartermaster. A receiving hospital has been established in Boulogne, whither half of the staff has gone, and is now working under military control. Although the hospital is only a freight shed at the railway station, an excellent operating theater has been fitted up, and the fair surgeons have been earning great commendation from the military medical inspectors.

BERLIN LETTER

Berlin, Oct. 28, 1914.

The War

Considering the great distance at which the present firearms, not only of the artillery but even of the infantry are fired, it is inevitable that dressing stations should be placed too near to the firing line and that they will be reached by missiles. Moreover in view of the great distances at which the opposing troops so often stand, it is inevitable that the Red Cross will not always be recognized. In addition, there are the injuries by bombs from the airships. All these circumstances have as a result that we already have lost a disproportionately large number of surgeons. While, in Franco-Prussian War, 1870-71, of 4,062 physicians on the field of battle on the German side, only nine fell and two later succumbed to their wounds, nearly 100 of about 9,000 surgeons, at present in the field, have fallen and thirty-seven have been wounded besides thirteen missing and three taken prisoners. Presumably among the missing are some who have fallen and hitherto have not been found but the greater number must have been taken prisoners.

The murderous battles have naturally had a large number of deaths and wounds among the soldiers. With regard to the extent of the losses, definite figures, naturally, cannot be given. As the reports from many parts of the army are received under very difficult conditions with great delay, the hundred lists of losses so far published give already a very sad report. Fortunately, so far the experience which has been procured in late wars with modern weapons, has been repeated with our wounded as, according to our observations, the wounds heal with surprising quickness and with proportionately small functional disturbance. Lamentable also are the large numbers of tetanus cases in our army. Relatively little disease has been reported and especially it is to be noted, that epidemics have not been hitherto observed. To be sure, in the east and in the west there have been a few hundred cases of typhoid and dysentery but these are quite sporadic and not in the nature of an epidemic, so that we may hope that this morbidity figure will be limited.

The German Red Cross

An editorial in the issue for October 29 of the *Deutsche medizinische Wochenschrift* compares the donations to the German Red Cross during the present war with those received during the Franco-Prussian War in 1870-71. At that time France was the only foe, and all the other nations contributed lavishly to the German Red Cross, a total, in round figures, of $1,875,000 cash and $3,875,000 in goods. Austria contributed $25,000; Belgium, $28,250; Denmark, $7,000; Greece, $5,750; Germans in France, $7,250; England, $140,000; Italy, $17,500; the Netherlands, $10,250; Portugal, $5,250; Russia, $100,000; Sweden and Norway, $6,750; Switzerland, $27,750; Spain, $2,750; Turkey and Roumania, $9,000; United States, $833,333 (3⅓ million marks); Central America, $47,500; South America, $187,500; Asiatic Turkey, $1,750; India, $50,000; China, $12,500; Japan, $17,500, and the Philippines, $3,500. Egypt donated $10,000; southern and western Africa, $13,750, and Australia, $30,500. The donations in hospital supplies, products of the various countries and jewels and art wares donated, besides the above cash, are placed at an estimated value of $3,875,000 (15½ million marks). The German Red Cross raffled off jewelry, etc., donated and thus added to the cash donations. The editorial compares the conditions in 1870-71, when all the other state were neutral, with conditions now "with half or three-quarters of the world as our foe and the rest keeping a neutral attitude, at the best wishing us well, but mostly a laboriously maintained neutrality (höchstens wohlwollend, meistens mühsam erzwungenen Neutralität uns gegenüber)." Consequently, it continues, the German Red Cross must rely on its own land almost exclusively for contributions in this campaign. To date, in addition to the American Red Cross expeditions, only Greece and Luxemburg have sent or signified their intention to send contributions or expeditions. The American contingent consisted of twelve physicians, fifty-six nurses and seven carloads of supplies, and half of these were destined for the scene of the war in Austria. In Germany, to date, August 1 to October 29, $1,250,000 have been contributed to the Red Cross.

The editorial comments further that donations in Germany are being distributed more now than formerly, other funds receiving contributions as well as the Red Cross, such as the fund for the care of widows and orphans and local organized relief work, and private benefactions. "This decentralization," it adds, "has both a good and a bad side. The essential point is only that our brave soldiers—and their families—shall be protected against lack of care and clothing. That they have had to suffer much in this respect which might have been avoided by the organization—notwithstanding all the military difficulties and exigencies—seems to be beyond question. Even the best efforts of the Red Cross were unable to provide better facilities for conveying the wounded at times. Of late, however, conditions in this respect have been materially improved."

Decoration with Pension Attached for Bavarian Medical Officers

The war department of Bavaria has announced the foundation of a new order, the Order of the Medical Corps (*Militär-Sanitätsorden*), which will take the place of the decoration founded in 1812, the *Militärsanitäts-Ehrenzeichen*. The new order will be conferred for distinguished services during war time by Bavarian physicians or physicians from outside of Bavaria who render special services to the members of the Bavarian army. The decoration is of two classes, and the one of the first class is contingent on having already received the other. The order carries with it a life annuity of $75 or $150 (300 or 600 marks).

Marriages

A. Marion Wassam, M.D., Galveston, Tex., to Mrs. Mary Hambly of Washington, D. C., at Beaumont, Tex., November 5.

Hiram Watkins Kostmayer, M.D., to Miss Carrol Houston Reichel, both of New Orleans, at Chicago, August 31.

Robert Bruce Wallace, M.D., Lecompte, La., to Miss Emma Dorothy James of New Orleans, November 9.

William P. Lee, M.D., Northfield, Minn., to Miss Alice Katherine Wentworth of Winthrop, Me., November 7.

Leonard Waterman, M.D., Norman, Neb., to Miss Elizabeth Luelle James of Calumet, Mich., September 16.

Emil J. Goldring, M.D., Philadelphia, to Miss Della Meitner of Roxborough, Philadelphia, November 3.

Walter Franklin Bleifuss, M.D., Elgin, Minn., to Miss. Lydia N. Lubahn of Racine, Minn., recently.

Edward A. Marrs, M.D., Moline, Kan., to Miss Blossom N. Thompson of Howard, Kan., September 27.

Lucious W. Brock, M.D., to Miss Dan Tate, both of Mount Herman, La., at Amite, La., November 10.

William R. Shaefer, M.D., Columbia, Mo., to Miss Alice Dixon of Kansas City, Mo., November 10.

Horace F. Pierce, M.D., San Francisco, to Miss Christine Buist of Moorestown, N. J., November 11.

William H. Harris, M.D., to Miss Marie Mercedes Friedrichs, both of New Orleans, October 26.

P. A. Surg. Willard J. Riddick, U. S. N., to Miss Adrienne Ziegler of New Orleans, October 28.

Percy G. Drake, M.D., Manila, P. I., to Miss Reta Helen Taylor of Baltimore, October 22.

Paul A. Ramsel, M.D., Shiner, Tex., to Mrs. Ida Kunneth of Rockdale, Tex., November 10.

Jesse Wright Downey, Jr., M.D., to Miss May Lee Willis, both of Baltimore, November 7.

Charles Jacob Barker, M.D., to Miss Aline Coulon, both of Thibodaux, La., October 14.

D. G. Mahood, M.D., Orchard, Neb., to Miss Nora Morley of Onawa, Iowa, October 28.

Porter D. Blackburn, M.D., Houston, Tex., to Miss Alice Dodd of St. Louis, November 10.

Lovell Langstroth, M.D., to Miss Dora Winn, both of San Francisco, October 23.

Deaths

Theodore Willis Fisher, M.D. Harvard Medical School, Boston, 1861; surgeon of the Forty-Fourth Massachusetts Volunteer Infantry during the Civil War; from 1884 to 1888 clinical instructor in mental diseases, and from 1888 to 1898 lecturer on mental diseases in his Alma Mater; for many years in charge of the Insane Hospital, South Boston; died at his home in Belmont, Mass., October 10, aged 77.

George Edward Gavin, M.D. Louisville (Ky.) Medical College, 1896; a Fellow of the American Medical Association; and a well-known surgeon of Mobile, Ala.; died in that city, November 14, after a long illness from malignant disease of the bladder and liver, aged 43. At a meeting of the Mobile County Medical Society, November 14, it was decided that the members attend in a body the funeral of Dr. Gavin.

Brigadier General Peter J. A. Cleary, U. S. A. (retired), L.R.C.S. Eng., 1860; a veteran of the Civil War in which he served as Assistant Surgeon and Surgeon of U. S. Volunteers; a member of the Medical Corps of the Army from 1867 until his retirement in 1903; died at his home in Chattanooga, Tenn., November 5, from heart disease, aged 74.

Charles Irving Stotelmeyer, M.D. University of Maryland, Baltimore, 1892; of Hagerstown, Ind.; a member of the Indiana State Medical Association; trustee of Jefferson township; died in the Reid Memorial Hospital, Richmond, Ind., November 12, after a surgical operation, aged 55.

William Henry Robertson, M.D. University of Alabama, Mobile, 1887; a Fellow of the American Medical Association and one of the best known practitioners of southeastern Alabama; died at his home in Clayton, Ala., November 21, from valvular heart disease, aged 53.

Aaron G. Humphrey, M.D. New York Hygieo-Therapeutic College of New York, New York City, 1858; for more than half a century a practitioner of Galesburg; was for a few months a resident of Kansas City, Mo.; died at his home in that city, November 17, aged 82.

John S. French, M.D. Medical College of Indiana, Indianapolis, 1883; a veteran of the Civil War in which he served as Assistant Surgeon of the One Hundred and Twentieth Indiana Volunteer Infantry; died at his home in Pittsboro, Ind., September 19, aged 85.

Frank N. Yeager, M.D. University of Pennsylvania, Philadelphia, 1888; of Hamilton, Pa.; a Fellow of the American Medical Association; died in St. Mary's Hospital, Rochester, Minn., November 14, from peritonitis after an operation for malignant disease, aged 57.

George Washington Boyd, M.D. College of Physicians and Surgeons, Baltimore, 1895; a Fellow of the American Medical Association, and proprietor of several drug-stores in Washington; died at his home in that city, November 21, from nephritis, aged 55.

Robert M. Sadler, M.D. Louisville (Ky.) Medical College, 1877; died at his home in Okolona, Miss., November 10, from the effects of a gunshot wound of the head, self-inflicted it is believed, with suicidal intent, while despondent on account of ill health.

John Henry Grimes, M.D. University of Maryland, Baltimore, 1868; a Confederate veteran; vaccine physician of Baltimore in 1873; died at the Sheppard and Enoch Pratt Hospital, Baltimore, November 7, from arteriosclerosis, aged 72.

Charles B. Turner, M.D. University of Louisville, Ky., 1881; local surgeon of the Southern Railway at Bluemont, Va., and formerly a member of the Loudoun County Board of Health; died at his home in Bluemont, November 13, aged 56.

Charles H. Mordoff, M.D. Chicago Homeopathic Medical College, 1881; Hahnemann Medical College, Chicago, 1905; a member of the Illinois State Medical Society; died at his home in Genoa, Ill., November 16, from cerebral hemorrhage, aged 58.

Emil V. Helfferich, M.D. Medical College of Ohio, Cincinnati, 1883; of Cincinnati; died at the German Deaconess Hospital in that city, from injuries received in a jump from a window in that institution while temporarily deranged, aged 53.

Andrew Cursena Gregg, M.D. Starling Medical College, Columbus, Ohio, 1901; formerly of St. Mary's and Brookville, Pa., but more recently a resident of Chicago; died in the Englewood Hospital, November 2, from uremia, aged 45.

Joseph Morrison Tydings, M.D. Kentucky School of Medicine, Louisville, 1861; a Confederate veteran; well known as an author and philanthropist of Louisville; died at the home of his daughter in that city, November 12, aged 78.

John C. Smith, M.D. Southern Medical College, Atlanta, Ga., 1884; a member of the Medical Association of Georgia; for thirty years a resident of Carroll County, Ga.; died at his home in Mansfield, Ga., November 10, aged 64.

Ella S. Webb, M.D. Woman's Medical College of Pennsylvania, Philadelphia, 1885; managing editor of one of the publications of the Webb Publishing Company; died at her home in St. Paul, November 15, from heart disease.

Warren Vernon Grimes, M.D. Missouri Medical College, St. Louis, 1877; president of the board of health of Pacific Grove, Cal.; died at his home in that place, November 4, from cerebral hemorrhage, aged 57.

Frank Vincent Kimbrough, M.D. Vanderbilt University, Nashville, Tenn., 1893; of Maxon Mills, Ky.; local surgeon for the Illinois Central System at that place; died in Guthrie, Ky., November 6, aged 43.

Amos Davis, M.D. University of Louisville, 1874; a member of the Kentucky State and Ohio Valley medical associations; died at his home in Owensboro, Ky., November 9, from nephritis, aged 66.

George Francis Hinmers, M.D. University of Oregon, Portland, 1895; died at his home in Milwaukie, Ore., August 30, from injuries received from a fall from a wagon twelve hours before, aged 54.

Joseph Henry Kelley, M.D. Bellevue Hospital Medical College, 1884; a member of the Massachusetts Medical Society; died at his home in Worcester, Mass., November 10, from cerebral hemorrhage.

Stephen Hunt, M.D. Rush Medical College, 1881; a member of the Indiana State Medical Association; died at his home in Coatesville, Ind., November 8, from cerebral hemorrhage, aged 69.

Ben Davis, M.D. Kentucky School of Medicine, Louisville, 1908; a member of the Oklahoma State Medical Association; died at his home in Kinta, Okla., November 1, from typhoid fever, aged 31.

Frank Henry Hobbs, M.D. Medical School of Maine, Brunswick, 1900; a member of the Maine Medical Association; died at his home in Waterboro, Me., October 11, aged 55.

Cassius Emmet Van Matre, M.D. Miami Medical College, Cincinnati, 1895; a Fellow of the American Medical Association; died at his home in Newcastle, Ind., October 17, aged 44.

Eugene V. West, M.D. Meharry Medical College, Nashville, Tenn., 1892; a colored practitioner of Tampa, Fla., for twenty-two years; died at his home in that city, November 5, aged 45.

Isaac R. Dunning, M.D. Eclectic Medical Institute, Cincinnati, 1867; Rush Medical College, 1870; died at his home in Benton Harbor, Mich., August 19, from cardiac asthma, aged 71.

Francis M. Wilson, M.D. Louisville (Ky.) Medical College, 1884; a member of the Florida Medical Association; died at his home in Bartow, Fla., November 8, from heart disease, aged 55.

Jerome R. Lyon, M.D. Rush Medical College, about 1867; for forty-five years in active practice; died at his home in Excelsior Springs, Mo., October 1, from pneumonia, aged 91.

Frederick Leander Davis, M.D. Medical School of Maine, Brunswick, 1888; a member of the Maine Medical Association; died at his home in Biddeford, Me., October 9, aged 55.

William Blair, M.D. University of Louisville, Ky., 1875; a member of the Kentucky State Medical Association; died at his home in Glens Fork, Ky., November 12, aged 73.

Andrew Benjamin Bookins, M.D. University of Louisville, Ky., 1875; a practitioner since 1856; died in Jacksonville, Fla., September 21, from chronic nephritis, aged 80.

Lindley Ruddick, M.D. University of Louisville, Ky., 1882; a member of the Indiana State Medical Association; died at his home in Seymour, Ind., October 20, aged 70.

Eugene J. Hickey, M.D. University of Vermont, Burlington, 1907; a member of the Vermont State Medical Society; died at his home in Warren, Vt., October 7.

Samuel H. Smyth, M.D. New York Homeopathic Medical College, 1880; died at his home in New York City, November 1.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

WINE OF CARDUI

The Holston Conference of the Methodist Church Endorses this Fraudulent Nostrum

Ordinarily, The Journal would not consider giving the Wine of Cardui fraud and its exploiters any further publicity in these pages. Wine of Cardui, however, is again brought into the lime-light because of the action of its friends and beneficiaries. In this case, its friends are the official committee appointed by the Quarterly Conference of the First Methodist Church of Chattanooga, to which J. A. Patten, chief owner of the Wine of Cardui concern, belongs and the Holston Conference which officially accepted the "findings" of the committee.

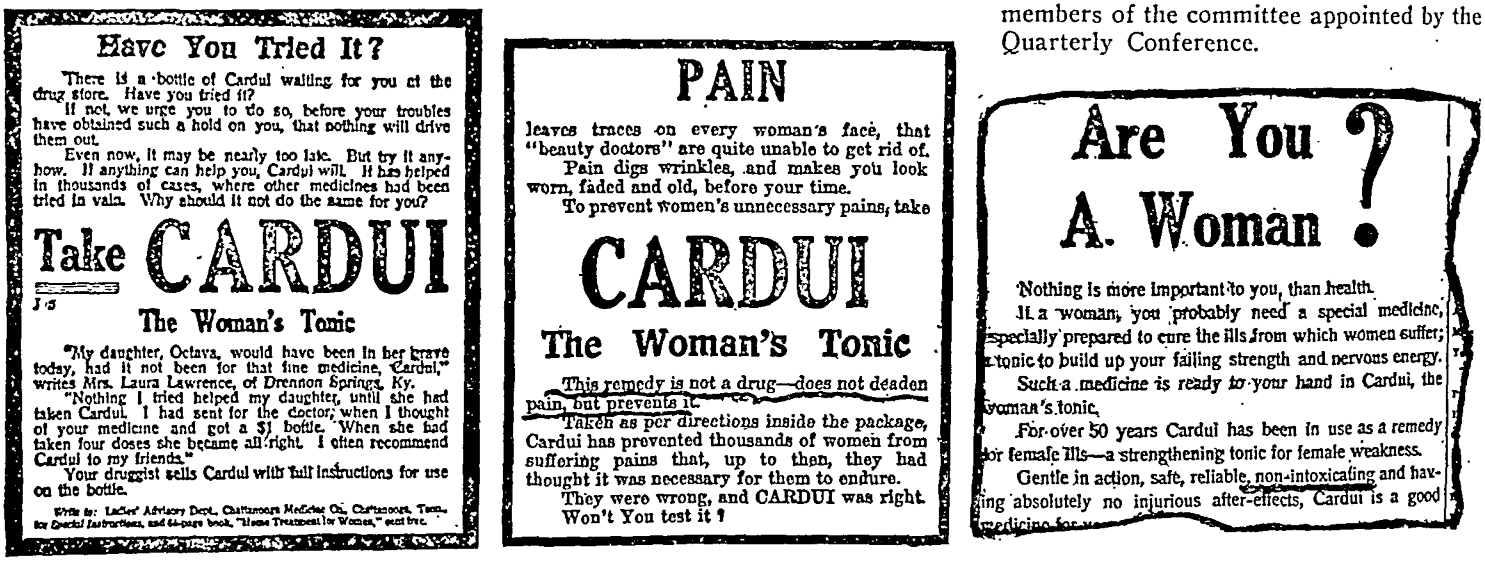
We cannot state too emphatically that what follows is in no sense a criticism of the Methodist Episcopal Church. Letters we have received from earnest Methodists lead us to believe that the membership of that church, generally, takes the same attitude toward Wine of Cardui that The Journal has taken. *We would also* reiterate that nothing that has been said, or that may be said in the future, regarding John A. Patten is actuated by malice. The Journal has in mind not Mr. Patten, not the Chattanooga Medicine Company, not the Methodist Episcopal Church, but the thousands of sickly women over the country—and especially those in the South—who have been and are being cruelly deceived in the purchase of a fraudulent nostrum.

To the initiated, the idea of Mr. Patten or his business being critized in his own locality is sardonically humorous. The man is such a power in his own city and state that the outcome of any local "investigation" is a foregone conclusion. Nevertheless, the local committee made an "investigation" and the Chattanooga *Times* gave a very full account of its "findings." The matter in the *Times* has been reprinted in leaflet form and mailed from Post Office Drawer B, St. Elmo Station, Chattanooga, Tenn. This is the "return address" that appears on the envelopes in which letters are sent out by the "Ladies Advisory Department" of the Chattanooga Medicine Company.

WHAT SOME METHODISTS THINK

Before discussing the report of the committee, as published in the Chattanooga *Times*, the following facts are worth noting: John A. Patten is a member of the First Methodist Church of Chattanooga. The pastor of that church is—or was—Rev. C. H. Myers. Although no statement has been made by Mr. Myers regarding his opinion of John A. Patten, the most prominent member of his church, he does not appear to be in sympathy with either the methods by which Mr. Patten made his money or the influence which this *money exercises in the church.* After The Journal had exposed the Chattanooga Medicine Company's fraudulent business, Mr. Myers wrote Mr. Patten a personal letter—which has recently been made public—suggesting that it might be for the best interests of all concerned if he, Patten, would turn over the teaching of the men's bible class to some one else. In addition, Mr. Myers has openly protested against what he called the undemocratic power that was being exercised in the church.

A Chattanooga paper in reporting a statement made by Rev. Dr. Myers to the members of his church said: "Without becoming personal, he [Mr. Myers] condemned the leading members of the church, declaring they recognize money as the greatest power extant." A little later Mr. Myers nominated the stewards for his church. According to the newspaper reports at the time he "eliminated ten friends of John A. Patten *from* the Board of Stewards." The names of the "friends" who had been eliminated were given in the paper. It is worth noting that among these "friends" were three of *the six whose names go to make up the committee that put* its official O K on Mr. Patten and his business. These three were, respectively, the chairman, secretary and one of the members of the committee appointed by the Quarterly Conference.



Have You Tried It?

There is a bottle of Cardui waiting for you at the drug store. Have you tried it?

If not, we urge you to do so, before your troubles have obtained such a hold on you, that nothing will drive them out.

Even now, it may be nearly too late. But try it anyhow. If anything can help you, Cardui will. It has helped in thousands of cases, where other medicines had been tried in vain. Why should it not do the same for you?

Take CARDUI

The Woman's Tonic

"My daughter, Octava, would have been in her grave today, had it not been for that fine medicine, Cardui," writes Mrs. Laura Lawrence, of Drennon Springs, Ky.

"Nothing I tried helped my daughter, until she had taken Cardui. I had sent for the doctor, when I thought of your medicine and got a $1 bottle. When she had taken four doses she became all right. I often recommend Cardui to my friends."

Your druggist sells Cardui with full instructions for use on the bottle.

Write to: Ladies' Advisory Dept., Chattanooga Medicine Co., Chattanooga, Tenn., for Special Instructions, and 64-page book, "Home Treatment for Women," sent free.

PAIN

leaves traces on every woman's face, that "beauty doctors" are quite unable to get rid of.

Pain digs wrinkles, and makes you look worn, faded and old, before your time.

To prevent women's unnecessary pains, take

CARDUI

The Woman's Tonic

This remedy is not a drug—does not deaden pain, but prevents it.

Taken as per directions inside the package, Cardui has prevented thousands of women from suffering pains that, up to then, they had thought it was necessary for them to endure.

They were wrong, and CARDUI was right.

Won't You test it ?

Are You A Woman?

Nothing is more important to you, than health.

If a woman, you probably need a special medicine, especially prepared to cure the ills from which women suffer; a tonic to build up your failing strength and nervous energy.

Such a medicine is ready to your hand in Cardui, the woman's tonic.

For over 50 years Cardui has been in use as a remedy for female ills—a strengthening tonic for female weakness.

Gentle in action, safe, reliable, non-intoxicating and having absolutely no injurious after-effects, Cardui is a good

Some advertising (greatly reduced) issued in 1910—some years after John A, Patten admittedly controlled the business.

In the latter part of October the Holston Conference met in Cleveland, Tenn. One of its first official acts was to "accept" the Quarterly Conference's "exoneration" of Mr. Patten and his business. Moreover, when the conference had finished making its appointments, it was found that the Rev. C. H. Myers had been removed from the pastorate of the First Methodist Church, and had been assigned to an inferior position in another city, a position that he refused to accept. Mr. Myers, in a letter published in the Chattanooga *Times*, commenting on the action of the conference, said in part:

> "We have lost locally in our fight for a high principle, but the whole church will yet know and believe that such a bureaucratic system of church government cannot long exist as a power for righteousness. We are standing against a gigantic ecclesiastical machine, fed by an unlimited amount of money. Mammon has won."

ANOTHER MINISTER PROTESTS

Mr. Patten's pastor-that-was is not, however, the only churchman who has spoken against the sinister *effect* that Wine of Cardui money exerts on the Methodist Episcopal Church. Rev. G. T. Byrd, pastor of the First Methodist Church of Etowah, Tenn., (also in the *Holston Conference*) as long ago as last July arraigned the administration of that Conference. In a letter sent to the members of his conference and which a Chattanooga paper published *in* full under the sub-heading "Thinly Veiled Attack on J. A. Patten," Mr. Byrd charged among other things:

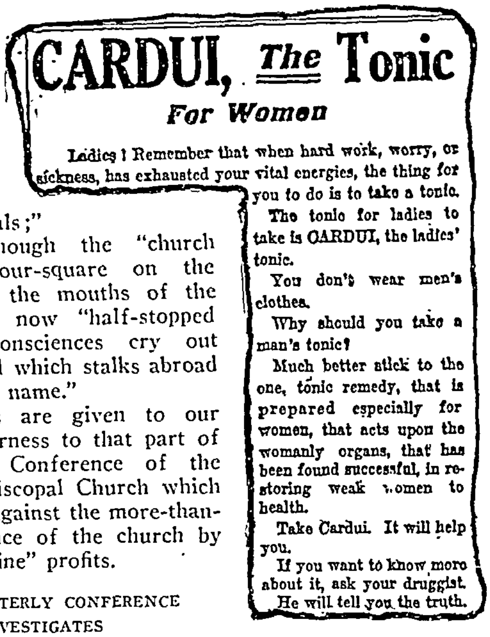
1. That the bishops seem to have "sacrificed their high sense of righteousness by accepting the influence of tainted money;"

2. That it was well-known and generally accepted "that the policies and appointments of the conference have had to have the endorsement of one prominent layman" before they were carried out;

3. That the church "is not dependent for its life and growth on the use of tainted money—money which comes from a product which government analysis shows to be 20 per cent. alcohol and which has frequently been condemned by medical journals;"

4. That although the "church has stood four-square on the liquor traffic" the mouths of the members are now "half-stopped while our consciences cry out against alcohol which stalks abroad under another name."

These facts are given to our readers in fairness to that part of the Holston Conference of the Methodist Episcopal Church which is protesting against the more-than-local dominance of the church by "patent medicine" profits.



CARDUI, *The* Tonic

For Women

Ladies! Remember that when hard work, worry, or sickness, has exhausted your vital energies, the thing for you to do is to take a tonic.

The tonic for ladies to take is CARDUI, the ladies' tonic.

You don't wear men's clothes.

Why should you take a man's tonic?

Much better stick to the one, tonic remedy, that is prepared especially for women, that acts upon the womanly organs, that has been found successful, in restoring weak women to health.

Take Cardui. It will help you.

If you want to know more about it, ask your druggist. He will tell you the truth.

Advertisement (greatly reduced) published in 1910. Wine of Cardui is the "ladies' tonic" — now; but some years ago the circular around each bottle of Wine of Cardui read: "IT HAS ALSO PROVED TO BE A FINE TONIC FOR MEN IN RESTORING WASTED ENERGIES."

THE QUARTERLY CONFERENCE INVESTIGATES

Now to refer to the "investigation" made by the official committee appointed by the Quarterly Conference of the First Methodist Church of Chattanooga. The committee was unanimously of the opinion, "after deliberate consideration," that in spite of the admitted fact that one-fifth of every bottle of Wine of Cardui is pure alcohol, yet, this is the only way in which the "drug content of the remedy" can be administered. Had there been an expert chemist or pharmacist on the committee he could have told them that it was unnecessary to use any alcohol. If the vegetable material is the part of the nostrum that possesses the marvelous qualities claimed for it, the drugs could be put up in tablet or pill form. The committee was further "satisfied" with a statement ascribed to druggists who had "never heard of its being used as a tipple or booze or used habitually." Self-respecting druggists—probably the class called on—would not, of course, be likely to know of the misuse of this preparation. The report does not indicate that any testimony was sought from the proprietors of country "general stores." In any case, was this committee innocent enough to expect the retailers of this alcoholic nostrum to admit that they had sold the stuff in quantities, or for purposes that were not legitimate?

PRESCRIBING ALCOHOL

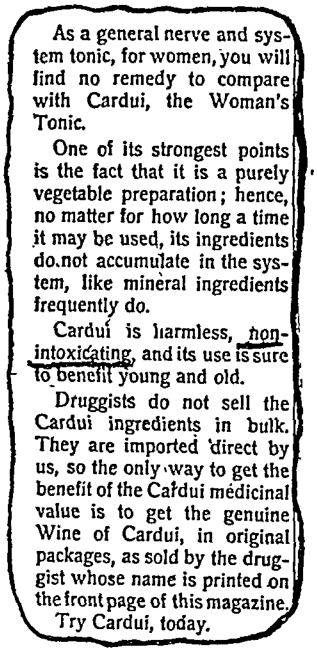
The committee was further "satisfied" with the argument—also alleged to have been given by druggists—that many remedies commonly prescribed by physicians to sick women contain a much larger percentage of alcohol than does Wine of Cardui. It is, of course, doubtless true that there are some physicians who prescribe drugs unscientifically and absurdly. To this fact THE JOURNAL has called attention for years, and has devoted much more space to and placed more emphasis on this very evil than it has devoted to "patent medicine" frauds. That the modern, educated physician is in the habit of prescribing alcohol for sickly women is, however, a question that would have to be settled on better evidence than that presented through the Chattanooga committee. Even if it were true, though, what would it signify? Because a physician prescribes a few doses of an alcoholic tincture to a patient whose physical condition is known to him and who is under his immediate supervision and control, is that any justification for a "patent medicine" concern recommending a nostrum having alcohol as its essential constituent, to persons they have never seen and the nature of whose ailments they do not, and could not, understand? To argue that because dangerous drugs are prescribed by physicians such drugs may legitimately be sold indiscriminately, is absurd. Because dynamite and blasting powder are used by, and sold on the order of, mining experts and civil engineers is no excuse for permitting every country store to sell dynamite and blasting powder to anyone it sees fit.

"EVIDENCE" OF CURES

The committee further reported that it found "abundance of evidence to inspire in the manufacturers" of Wine of Cardui the belief that it "cures" the ailments for which it is recommended to the public. What this evidence was the committee did not disclose. The absurdity and futility of a group of laymen (there were no physicians on the committee so far as the report indicates) passing on questions of therapeutic efficiency, is self-evident. Presumably, the committee read the various testimonials that form so large a part of the Chattanooga Medicine Company's advertising material. It might be suggested at this point that the same committee could have found equally abundant evidence to prove the prophylactic powers of the left hind foot of a rabbit caught in a churchyard in the dark of the moon! And this evidence would have just the same scientific value as that of the average testimonial for Wine of Cardui or any other nostrum or method of treatment.

THE NOSTRUM MAKER'S SHEET ANCHOR—MYSTERY

In answer to THE JOURNAL'S charge that nothing having therapeutic effects could be found in Wine of Cardui other than the alcohol, the committee says that it was "shown many authorities to the effect that it is very difficult for any chemist to analyze a vegetable compound such as this and be sure of its contents." The old, old argument of the nostrum exploiter—mystery! While technically it may be true that there are some vegetable extractives whose identity cannot be positively determined by chemical analysis, it is equally true that the active ingredients of practically every substance having any medicinal property can be identified. The fact that the chemist cannot name all of the plant extractives that enter into a nostrum such as Wine of Cardui, is of no practical importance. The essential drug in this nostrum is the alcohol, and it is the only drug demonstrably present in sufficient quantities to give any appreciable therapeutic effect.



As a general nerve and system tonic, for women, you will find no remedy to compare with Cardui, the Woman's Tonic.

One of its strongest points is the fact that it is a purely vegetable preparation; hence, no matter for how long a time it may be used, its ingredients do not accumulate in the system, like mineral ingredients frequently do.

Cardui is harmless, non-intoxicating, and its use is sure to benefit young and old.

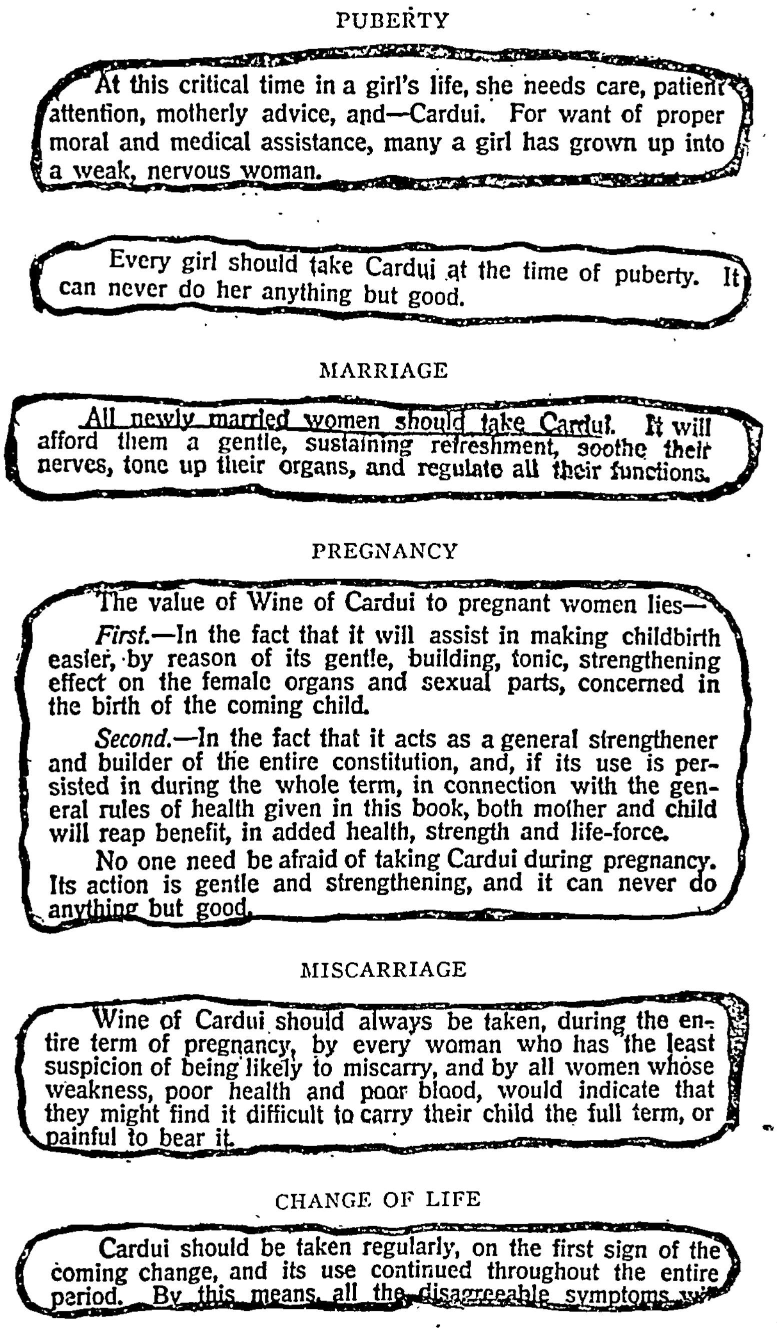
Druggists do not sell the Cardui ingredients in bulk. They are imported direct by us, so the only way to get the benefit of the Cardui medicinal value is to get the genuine Wine of Cardui, in original packages, as sold by the druggist whose name is printed on the front page of this magazine.

Try Cardui, today.

Advertisement (reduced) published 1910. Read it carefully and then ask whether THE JOURNAL is justified in criticizing Wine of Cardui and its exploiters.

PATTEN'S ADVERTISING

In discussing THE JOURNAL'S criticisms of the Wine of Cardui advertising, the committee stated that there were two classes of advertising that had been criticized, (1) that which was printed before Mr. Patten took charge of the company and (2) that which was found in a book entitled, "Home Treatment for Women." This statement is but a half-truth. THE JOURNAL presented advertisements that had been published years after Mr. Patten had admittedly been in control, in addition to the claims that were made for the nostrum in the "Home Treatment for Women" booklet. The Journal went further. It gave photographic reproductions of the advertisements with a statement beneath each calling attention to the date on which the advertisements appeared! One of these reproductions was of an advertisement which in large, blackfaced type urged "young girls" to take Wine of Cardui. It contained the statement that Wine of Cardui is "non-intoxicating." This untruth used to appear on the Wine of Cardui labels in the days before the Food and Drugs Act was passed and it continued to appear in the circular around the bottle for some time after the Food and Drugs Act was passed.[1] It contained the further statement that Wine of Cardui is "perfectly harmless" — another lie that appeared on the label before the Food and Drugs Act was passed. Had the committee been more intent on giving the public a plain unvarnished statement of facts regarding the methods of the Wine of Cardui concern than it was, apparently, in wielding the "whitewash brush," it could have found many other fraudulent claims made for the nostrum other than those that The Journal has brought out.



PUBERTY

At this critical time in a girl's life, she needs care, patient attention, motherly advice, and—Cardui. For want of proper moral and medical assistance, many a girl has grown up into a weak, nervous woman.

Every girl should take Cardui at the time of puberty. It can never do her anything but good.

MARRIAGE

All newly married women should take Cardui. It will afford them a gentle, sustaining refreshment, soothe their nerves, tone up their organs, and regulate all their functions.

PREGNANCY

The value of Wine of Cardui to pregnant women lies—

First.—In the fact that it will assist in making childbirth easier, by reason of its gentle, building, tonic, strengthening effect on the female organs and sexual parts, concerned in the birth of the coming child.

Second.—In the fact that it acts as a general strengthener and builder of the entire constitution, and, if its use is persisted in during the whole term, in connection with the general rules of health given in this book, both mother and child will reap benefit, in added health, strength and life-force.

No one need be afraid of taking Cardui during pregnancy. Its action is gentle and strengthening, and it can never do anything but good.

MISCARRIAGE

Wine of Cardui should always be taken, during the entire term of pregnancy, by every woman who has the least suspicion of being likely to miscarry, and by all women whose weakness, poor health and poor blood, would indicate that they might find it difficult to carry their child the full term, or painful to bear it.

CHANGE OF LIFE

Cardui should be taken regularly, on the first sign of the coming change, and its use continued throughout the entire period. By this means, all the disagreeable symptoms w

Photographic reproductions (reduced) from the booklet "Home Treatment for Women," sent out early this year (1914). After The Journal's exposé a denatured edition of this booklet was issued.

Mr. Patten claims to have assumed control of the Wine of Cardui business in 1905, and he insists that the business should be judged according to the advertising issued since that time. This is exactly what The Journal has done. The advertising which The Journal has criticized most severely is that which was being issued in 1914; other claims just as fraudulent were reproduced from advertisements published in 1910—five years after Mr. Patten admits he assumed control. But the attempt of Mr. Patten to dodge behind a technicality, while in keeping with the tactics of "patent-medicine" fakers, is not such as to inspire respect for him or his business in the eyes of decent people. We have evidence to show that Mr. Patten was placing Wine of Cardui advertisements years before he assumed open control. Certain it is that Mr. Patten was connected with, and a beneficiary of, the Wine of Cardui business many years before his admitted complete control. He was receiving money from this wretched business when the advertising was vile, loathsome and indecent.

But as Mr. Patten has claimed that since he assumed charge the advertising has been "free from curative claims that could be regarded as extreme or subject to any fair criticism," let us quote some more:

> ". . . of the utmost value in relieving pain, regulating the menses, curing leucorrhea, preventing miscarriage and making childbirth easy." [*Claim made in 1909.*]
>
> "It is a reliable, scientific, non-intoxicating, harmless medicine for all females, at puberty, maturity, pregnancy and during the change of life." [*Claim made in 1909.*]
>
> "No matter how serious or long standing the trouble Cardui will help you. It is a mild vegetable tonic remedy especially adapted to relieve and cure the common womanly ailments." [*Claim made in 1912.*]
>
> "For young girls just entering into womanhood and young ladies whose life duties have not long begun, Cardui is often of vital importance, giving them strength for daily tasks." [*Claim made in 1910.*]
>
> "It [Cardui] is a pure non-intoxicating preparation . . ." [*Claim made in 1910.*]
>
> "Its ingredients help build up vitality, tone up the nerves and strengthen the entire womanly constitution. It is mild and harmless." [*Claim made in 1914.*]
>
> "This remedy [Cardui] is not a drug—does not deaden pain, but prevents it." [*Claim made in 1910.*]
>
> "Cardui acts on the cause of the disease [Vaginitis] and is therefore not a mere palliative, but a scientific and specific remedy, with a curative effect upon the seat of the trouble." [*Claim made in 1914.*]
>
> "Cardui acts medicinally on the ovaries and tubes, and on all their surrounding parts, gradually subduing the inflammation, stopping pain and relieving the congestion." [*Claim made in 1914.*]
>
> "Cardui is harmless, non-intoxicating . . ." [*Claim made in 1910.*]
>
> "As a general nerve and system tonic for women, you will find no remedy to compare with Cardui, the Woman's Tonic." [*Claim made in 1910.*]

THE JOURNAL'S ALLEGED "STRAINED INTERPRETATIONS"

The above are some of the claims made by the Chattanooga Medicine Company for Wine of Cardui *since* Mr. Patten has admittedly had charge of affairs. As to the other claims quoted in The Journal's article, taken from the booklet, "Home Treatment for Women" (sent out in 1914), these the committee gloss over with the admission that while their "phraseology" is "careless" The Journal's "interpretation" of the statements is "strained." Was it strained? The Journal called attention to the fact that women are urged to take Cardui for "hanging breasts." Let us quote the entire paragraph so that our readers can determine whether or not our interpretation is strained:

> "At the least tenderness, soreness, swelling, discharge of milk-like fluid, *lack of tone, shown by hanging breasts,* or change in the color of the areola, not caused by pregnancy, *it is time to take Cardui.*" [Claims made 1914. Italics ours.—Ed.]

The Journal said that Mr. Patten's company recommended this alcoholic nostrum for gonorrheal infection of the vulva; was it justified in so saying? Again, let the matter be quoted in full:

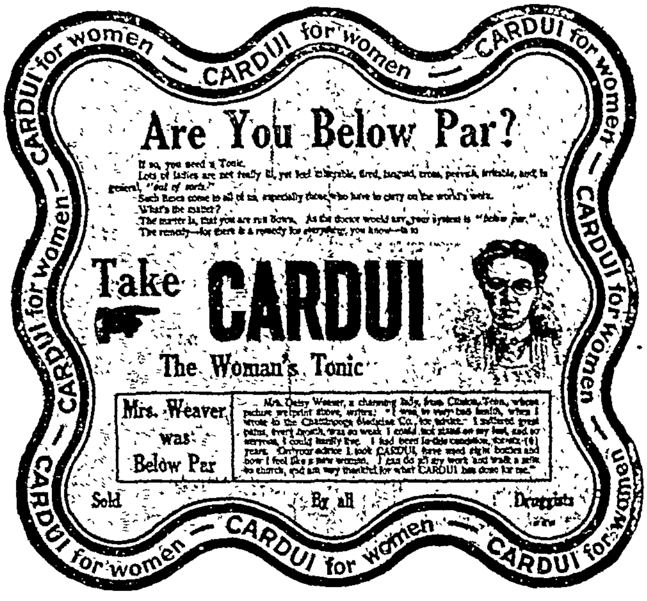
> "Local diseases of the vulva are, principally, heat, inflammation and itching, and are frequently caused by want of cleanliness. Very often, however, *they are caused by gonorrheal infection,* or by disease of the

---

[1] For some time after the passage of the Food and Drugs Act, many "patent medicine" makers held that the circular around the bottle did not come within the scope of the Act. Hence, while they deleted the lies from the *labels* of their nostrums, they continued to falsify in the *circulars* wrapped around the bottles. The history of the "patent medicine" business shows that the average nostrum maker will lie just so long as he can do it with safety.

womb, ovaries, or vaginal canal, which causes irritating and poisonous secretions.

"*Cardui will exert marked beneficial effect upon this local irritation*, by relieving the inflammation which causes it; but, in addition to general treatment, local treatment should also be carefully carried out, the outer parts washed with castile or palm oil soap and warm water, and well dried, at least once a day, after which a little powdered boracic acid may be dusted on." [Claims made 1914. Italics ours.—Ed.]



CARDUI for women — CARDUI for women — CARDUI for women — CARDUI for women — CARDUI for women — CARDUI for women — CARDUI for women

Are You Below Par?

Take CARDUI

The Woman's Tonic

Mrs. Weaver was Below Par

Sold By all Druggists

This advertisement appeared in October, 1911. In the original it measured 11 inches by 10 inches.

The Journal further said that Wine of Cardui was recommended for suppressed menstruation and also for "flooding." Was it justified in saying so? Again let us quote:

> "Besides the two special forms of menstrual disorder described above [*amenorrhea* and *menorrhagia*], there may be, as stated, others, such as *scantiness, irregularity* of the functions, painful periods, etc., *all of which can nearly always be cured by persistent treatment with Cardui*." [Claims made 1914. Italics ours.—Ed.]

The Journal said, too, that Mr. Patten's concern recommended that all newly married women should take Cardui. Was the "interpretation" in this case "strained?" Let us quote in full:

> "*All newly married women should take Cardui*. It will afford them a gentle, sustaining refreshment, soothe their nerves, tone up their organs, and regulate all their functions." [Claims made 1914. Italics ours.—Ed.]

The Journal also accused the Chattanooga Medicine Company of making the villainous suggestion that every girl should take Cardui at the time of puberty. Was this accusation just?

> "At puberty, the girl blossoms out like a flower from the opening bud. Her figure becomes fuller and rounder; her busts swell, and are often sore and tender; her voice becomes sweeter; hair begins to show itself under the armpits and on the lower abdomen.
>
> "*At this critical time in a girl's life, she needs* care, patient attention, motherly advice, and—*Cardui*. For want of proper moral and medical assistance, many a girl has grown up into a weak, nervous woman . . ."
>
> "*Every girl should take Cardui at the time of puberty*. It can never do her anything but good." [Claims made 1914. Italics ours.—Ed.]

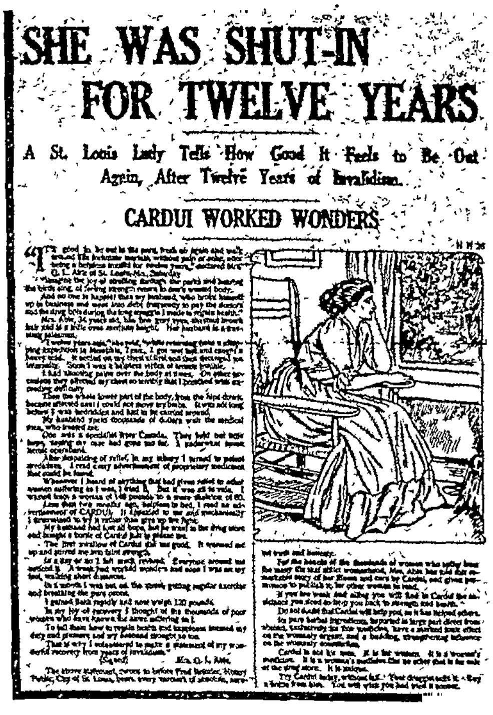
We could, if space permitted, show in detail that the charges of The Journal against the claims made for Wine of Cardui were in every instance understated rather than overstated; that The Journal's "interpretation" of the claims made by the Chattanooga Medicine Company instead of being "strained" was, in fact, more than justified.

Lastly, the committee decided that the owners of the Chattanooga Medicine Company were not morally culpable and "there could be no basis for any such charge unless it was shown that the medicine is worthless." As a matter of fact, even if Wine of Cardui had valuable drugs in it, the fraudulent claims under which it has been sold would still render its exploiters morally culpable. The committee summed up its findings with the statement that its investigation disclosed nothing which, in its opinion, "would prevent an intelligent and conscientious man" from engaging in the Wine of Cardui business, "from the point of view of either morals or religion." In other words, the Quarterly Conference of the First Methodist Church of Chattanooga—the Holston Conference, concurring—sees nothing either immoral or irreligious in the sale of a nostrum whose essential constituent is alcohol; sees nothing immoral or irreligious in the exploitation, under fraudulent claims, of this preparation to every adolescent girl, to every bride, to every expectant mother and to every woman at the menopause!

As we have said before, The Journal does not believe that this local official "whitewashing" is representative of the views of the majority, or of any substantial minority, of the members of the church in which Mr. Patten plays such an important part. It is true that a certain part of Methodist officialdom is standing up for Patten and his wretched business. Some of the *Christian Advocates* have come, editorially, to Mr. Patten's rescue, urging their readers to suspend judgment until Patten's suit for libel against The Journal has been decided. But Mr. Patten, it should be remembered, is chairman of the Book Committee which (1) annually fixes the salaries of all official editors, which (2) has power to discontinue any official Methodist publication, and which (3) has, in fact, "general supervision and direction of the publishing interests" of the church. These facts should, in fairness, be remembered in extenuation of the action of those editors who come so valiantly to the defense of the manufacturer of Wine of Cardui.

WHY REJECT ADVERTISEMENTS OF WINE OF CARDUI

On the other hand it must again be emphasized that no official publication of the Methodist Episcopal Church accepts the advertisements of Wine of Cardui! Yet if Wine of Cardui can do half that Mr. Patten's company has claimed for it, it can accomplish more than any preparation known to medical science. If it can exert "beneficial effect" in gonorrheal vulvitis; if it is a "specific remedy" in gonorrheal vaginitis; if it has "cured" the wombs of "over a million women;" if it can "nearly always" "cure" amenorrhea, menorrhagia, "scantiness, irregularity of the functions, painful



SHE WAS SHUT-IN FOR TWELVE YEARS

A St. Louis Lady Tells How Good It Feels to Be Out Again, After Twelve Years of Invalidism.

CARDUI WORKED WONDERS

Another advertisement published in 1911. The original occupied more than 150 square inches of space.

periods, etc.;" if it is what every girl at puberty "needs;" if it is something that "all newly married women should take;" if it "will assist in making childbirth easier;" if it is something the lying-in woman should take "two or three times a day;" if the woman at the menopause should take and continue its use "through the entire period"—if these are the powers and the potentialities of Wine of Cardui, then indeed are the Methodist publications remiss *in their* duty to humanity. If this nostrum possesses the powers claimed for it—claims which two Methodist conferences have accepted as reasonable and true—then the editors of the various *Christian Advocates* are derelict in not accepting advertisements of the product of the Chairman of their Book Committee—Wine of Cardui, The Woman's Tonic.

Correspondence

Do Patent Medicines Control the Press?—An Example

To the Editor:—Any suggestion that the daily press is subservient to dishonest advertising interests is received with instant and fervid indignation by 95 per cent. of the newspapers. Just about this percentage takes money for obviously crooked advertising, in the form of quack medical "copy." As the object of much of this virtuous journalistic wrath on account of my recent novel "The Clarion," I wish to point out an instance in the career of the book itself which curiously supports my contention.

Binghamton, N. Y., is the home of Swamp Root, a conspicuous "booze-medicine" which I exposed a few years ago in *Collier's Weekly*. It is a prosperous and thriving city of almost 55,000 inhabitants, served by two local newspapers, the *Press* and the *Republican-Herald*. Just before the appearance of "The Clarion," the publishers sent to the *Press* an advertisement of the book specially designed to arouse the local interest of a city largely devoted to the patent medicine industry. The copy was returned with the following letter:

> Binghamton, N. Y., Sept. 30, 1914.
>
> Houghton Mifflin Company, 4 Park St., Boston, Mass.
>
> *Gentlemen:*—We are returning, herewith, your order of the 28th inst., for "The Clarion" with copy, as we do not care to handle same. Thanking you for the proposition, we are
>
> Very truly yours,
> The Binghamton Press.

On the theory that this particular form of wording had been deemed too pointed, one of the regular advertisements of the book was sent. This also was refused, with the following suggestive intimation:

> Binghamton, N. Y., Oct. 9, 1914.
>
> Houghton Mifflin Company, 4 Park St., Boston, Mass.
>
> *Gentlemen:*—We are returning, herewith, your copy of the 7th inst., for "The Clarion." We greatly prefer not to handle any advertising for this particular book. Thanking you for the offer, we are
>
> Very truly yours,
> The Binghamton Press.

As the *Press* had formerly been owned by the Kilmers, proprietors of Swamp Root, its indisposition to advertise a work dealing with the proprietary medicine evil might be attributed to a legacy of loyalty to old standards. No such inhibition would apply to the *Republican-Herald*. The first, or local advertisement was sent to that office, bringing with it tribulation of spirit to the business staff. They did not like to reject the advertising. All newspapers particularly appreciate publishers' business, as a mark of "class." But they felt evidently that the proffered "copy" was too near home, and they wrote asking if it could not be modified somewhat. Thereupon the regular stock advertisement of the book was forwarded. What occurred in the office in the meantime is a matter of conjecture only. But the outcome is sufficiently significant. "Owing to a peculiar agreement existing between the Binghamton newspapers" (I quote from the letter of the advertising agency acting for the publishers) the *Republican-Herald* felt compelled to decline all advertising of this particular book!

Meantime the local book-stores refused to order it, although it was having one of the largest advance sales of the year in other parts of the country. One store made no secret of the fact that fear of the Swamp Root interests kept the novel off their shelves. It was not even obtainable at the local public library. Since this letter was written, however, I understand that the library has put it in, and the book department of a general merchandise store which at first rejected it, is now carrying the book.

All of which would seem to indicate that my fictional city of "Worthington" with its press under the domination of "our leading citizen," Dr. Surtaine of "Certina" fame, is not perhaps so wholly absurd and foundationless as the New York *Times*, the San Francisco *Chronicle* and others of the noble band of newspaper defenders would have their public believe.

Samuel Hopkins Adams, Auburn, N. Y.

Shields in Vaccination

To the Editor:—Will you give me space in The Journal in which to protest against the still too frequent use of "shields" in covering vaccination wounds? In routine vaccination work it has recently been my lot to examine many arms, a number of which I have dressed after the persons had applied shields, on their own initiative, or often on the advice of some physician. Others, having large, ugly cicatricial evidence of former pyogenic infection, too frequently give a history of having worn shields. I have removed shields and have seen a collection of accumulated pus roll down the arm, the patient thinking this a natural result of the "take." Shields are usually perforated for supposed ventilation, the perforation in reality serving to admit germ-laden dust and dirt of various kinds. The shield prevents cleansing of the wound, and gives the patient a false sense of proper protection. There is not a doubt that shields have been the direct cause of many seriously infected arms, thus in many instances causing the public to antagonize a most valuable prophylactic procedure. Shields are an abomination and a danger, and I should like to suggest that they be made a subject for comment in your department of Propaganda for Reform. They are far more dangerous than many patent medicines, as the latter are often harmless in themselves, while the former are a source of danger. It should be impressed on the profession, and the public, that a vaccination wound should have the same carefully applied sterile dressing as any other wound or sore, and that such dressing is much cheaper and simpler. These shields are manufactured by reputable firms who would, no doubt, refrain from placing them on the market if sufficient effort were made by clinicians to impress the makers with a knowledge of their dangers.

Alfred G. Farmer, M.D.,
Colon Hospital, Cristobal, C. Z.

Danger of War News

To the Editor:—It is time the medical profession impressed on the public the danger arising from too much reading and thinking of the war and its tragedies. Consideration of the vastness of the war, with its unnumbered and unspeakable atrocities and its suffering, overstimulates and weakens the mental fiber, and this soon reacts on the physical state of the individual. The husband neglects his wife, the mother her child, sleep is lost, appetite and digestion are impaired by reading of Belgium and blood, Prussia and pillage, Germany and guns, Servia and shrapnel, cholera, ruins, rape, hunger, cold, wounds, widows, orphans, destruction, despair, drunkenness and death. Daily the press of the country places before our greedy eyes all the printable horrors, and as we grasp our paper we breathe a curse or prayer according to the tenor of the latest despatch. The danger of this is increased by the constantly changing results of the vital conflict. The rapid shift from overstimulation of our emotions to deep depression causes increased blood-pressure, cerebral congestion, nervousness and irritability and may lead to imagined or real physical degeneration. Also it is to be remembered that the constant and earnest reader, especially he who is naturally emotional or neurotic, suffers from this overstimulation and depression for an indefinite time. The excitement and depression is quite different from that bred of a horse race or prize fight, in which our emotions undergo rapid change for only a short time, and yet we know that cases of collapse and even sudden death have occurred at such events. The ending of the present war may be far in the future, and the harrowing conditions of our fellow men meanwhile will probably become more extreme and more pitiable, while it may be that our doubts and depressions will become more marked. Another bad influence is the uncertainty of the reports we hear, so that we are exposed to frequent and swift revulsions of feeling, uplifts and downthrusts of the mental scale. As a matter of fact, we suffer far more from apprehension of doubt of the issue of events than from the event itself; in the present instance, moreover, our mental impressions are so chaotic that confusion is caused by the simple process of attempting to grasp what is going on.

What we need now especially is to conserve our energy and stop this fretting, worrying, nerve-racking and useless occupation of reading and discussing harrowing details. Each of us should look at this terrible thing soberly, quietly and broadly, not allowing an emotional element to enter the subject; for so soon as we do, our good judgment and balance is sent tumbling toward hysteria and nerve exhaustion. GURNEY WILLIAMS, M.D., Atlantic City, N. J.

The Cammidge Reaction in the Urine—Dextrinuria

To the Editor:—In THE JOURNAL, Oct. 31, 1914, p. 1581, which has just reached me, you comment on an article by Pekelharing and Van Hoogenhuyze (*Ztschr. f. physiol. Chem.*, 1914, xci, 151) on this subject and state that these observers suggest that the reaction is due to a dextrinuria. May I point out that in a paper which I read before the Medical Section of the Seventeenth International Congress of Medicine in London in August, 1913, on a quantitative method of performing the so-called "pancreatic" reaction, I stated that the reaction is due to the presence of a substance "intermediate between sugar and glycogen," thus hinting at its being a dextrin? Shortly afterward I was able to complete the evidence and, in conjunction with my chemical assistant, Mr. Howard, I wrote a paper entitled "Observations on the Composition and Derivatives of Urinary Dextrin," which, after some unavoidable delay, appeared in the *Lancet*, Sept. 26, 1914, p. 791. An abstract was given in THE JOURNAL, Oct. 24, 1914, p. 1508. In this paper the formula of the dextrin, which we isolated in a number of cases, was worked out and its probable relation to glycogen and starch shown. We were able to prove that the "pancreatic" reaction depends on the formation of an osazone by the pentose (xylose) split off from the dextrin by hydrolyzing with hydrochloric acid and that in the quantitative method the "iodin coefficient" of the urine is a measure of its content of dextrin. Our observations on the dextrin excretion are in agreement with those you quote, but we were also able to study the effect on the output of diseases of the pancreas, early glycosuria, and frank diabetes. One practical outcome of our observations has been to show that the appearance of sugar in the urine in diseases of the pancreas is preceded by a marked rise in the excretion of dextrin, which falls when glycosuria is established. It would therefore seem that determinations of the "iodin coefficient" are not only useful in the diagnosis of disease of the pancreas, but also afford a means of detecting and therefore treating diabetes in the preglycosuric stage with consequent better chance of success. In view of these and other results I think we can fairly claim to have established dextrinuria as a clinical entity, and it seems probable that the further investigations on which I am engaged will furnish information of value in relation to carbohydrate metabolism both in health and disease. In conclusion may I again state that neither the "pancreatic" reaction nor its modification, "the iodin coefficient" of the urine, has ever been claimed by me to be a specific test for disease of the pancreas? For several years I have stated that in my opinion it is merely an evidence of perverted carbohydrate metabolism which, when taken in conjunction with other evidence, is of assistance in the diagnosis of disease of the pancreas, since imperfect functioning of that organ is the most common cause of a metabolic failure in this direction.

P. J. CAMMIDGE, M.D., London, England.

Unauthorized Use of Name

To the Editor:—A display advertisement appeared in a Dubuque paper November 6 of the following verbiage:

"Mineral Water Mud Baths Cure Rheumatism at the Old Sanitarium, Prairie du Chien, Wisconsin. F. J. Antoine, Phy. Dr. Edward Evans, Sur."

My name was used without either my knowledge or consent. I have on file affidavits from the editor of the paper and the owner of the sanitarium saying that this advertisement was inserted without my knowledge or consent. You will confer a favor if you will insert this note in your Correspondence column. E. EVANS, M.D., La Crosse, Wis.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

QUESTIONS OF CORRECT LANGUAGE: "COCCI," "APPENDECTOMY" AND "SCOPOLAMIN"

To the Editor:—1. What is the proper pronunciation of words terminating in "cocci" and "coccic"? I sometimes hear the double "c" pronounced as if it were "k," sometimes as if it were "x" and sometimes as if it were "s."

2. What is the proper word to use to indicate the removal of the appendix, appendicectomy, appendiectomy or appendectomy?

3. What is the correct pronunciation of "scopolamin?" The latest dictionary puts the accent on the "a" but practically all physicians put it on the "o." I confess that euphony seems to be in favor of the pronunciation given by the physicians.

J. F. B., Columbus, Ohio.

ANSWER.—1. The double "c" in "cocci" and "coccic" should be given the ordinary English pronunciation, the first "c" hard like "k" and the second soft like "s.".

2. There seems no valid reason why the consideration of brevity should not prevail, giving the choice to "appendectomy." "Appendicectomy" is sometimes preferred on etymological grounds, but such considerations seem an unnecessary refinement since the word, being a hybrid, has no etymological right to exist.

3. Both euphony and derivation favor the accent on the second "o." Scopolamin does not belong to the class of amins; it is merely the alkaloid derived from scopola.

EXPOSURE AND IMMUNITY TO DIPHTHERIA

To the Editor:—1. Will you please inform me whether an adult having been in the same room with an individual who developed diphtheria the following day, but not in close contact, should be subjected to an immunizing dose of antitoxin, though she herself has had diphtheria?

2. Would your opinion be otherwise, if that individual were a teacher?

3. Is it not a fact that the majority of adults have a natural immunity to diphtheria?

4. Is it not a fact that the vast number of individuals who have once had diphtheria are immune to a second attack?

5. For how long does an immunizing dose render an individual passively immune?

A. R. HATCHER, M.D., Wellington, Kan.

ANSWER.—1. An adult exposed to diphtheria should be advised to receive an immunizing dose of antitoxin.

2. If the person is a teacher, she is bound to take every proper precaution.

3. The majority of adults have no marked immunity to diphtheria although they are less frequently attacked than children.

4. The immunity following an attack of diphtheria is very transient, lasting usually not more than three months.

5. An immunizing dose of antitoxin offers protection against the disease for a few weeks only.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Alabama: Montgomery, Jan. 5, 1915. Chairman, Dr. W. H. Sanders, Montgomery.

Alaska: Juneau, Jan. 5, 1915. Sec., Dr. H. C. DeVighne, Juneau.

Arizona: Phoenix, Jan. 5-6, 1915. Sec., Dr. John Wix Thomas, 200 Nat'l Bank of Ariz. Bldg., Phoenix.

California: Los Angeles, December 8. Sec., Dr. Charles B. Pinkham, 727 Butler Bldg., San Francisco.

Delaware: Dover and Wilmington, December 8-10. Sec., Dr. H. W. Briggs, 1026 Jackson St., Wilmington.

Illinois: Chicago, Jan. 13-15, 1915. Sec., Dr. C. St. Clair Drake, Springfield.

Indiana: Indianapolis, Jan. 12-14, 1915. Sec., Dr. W. T. Gott, State House, Indianapolis.

Kentucky: Louisville, December 16-18. Sec., Dr. A. T. McCormack, Bowling Green.

Maryland: Baltimore, December 8. Sec., Dr. J. McP. Scott, 137 W. Washington St., Hagerstown. Homeopathic, Baltimore, December 15-16. Sec., Dr. O. N. Duvall, 1817 N. Fulton, Baltimore.

Minnesota: Minneapolis, Jan. 5-8, 1915. Sec., Dr. Thomas McDavitt, 814 Lowry Bldg., St. Paul.

Missouri: St. Louis, December 14-16. Sec., Dr. J. A. B. Adcock, State House, Jefferson City.

New Hampshire: Concord, December 29-30. Regent, Mr. H. C. Morrison, Concord.

New Mexico: Santa Fe, Jan. 11, 1915. Sec., Dr. W. E. Kaser, E. Las Vegas.

North Dakota: Grand Forks, Jan. 5, 1915. Sec., Dr. G. M. Williamson, Grand Forks.

Ohio: Columbus, December 8-10. Sec., Dr. George H. Matson.

Oklahoma: Oklahoma City, Jan. 12-14, 1915. Sec., Dr. John W. Duke, Guthrie.

Pennsylvania: Philadelphia, December 1-3. Sec., Dr. N. C. Schaeffer, Harrisburg.

Rhode Island: Providence, Jan. 7, 1915. Sec., Dr. Gardner T. Swarts, State House, Providence

South Dakota: Pierre, Jan. 12, 1915. Sec., Dr. P. B. Jenkins, Waubay.

Utah: Salt Lake City, Jan. 4-5, 1915. Sec., Dr. G. F. Harding, 407 Templeton Bldg., Salt Lake City.

Vermont: Montpelier, Jan. 11-13, 1915. Sec., Dr. W. Scott Nay, Underhill.

Virginia: Richmond, December 15-18. Sec., Dr. J. N. Barney, Fredericksburg.

Washington: Walla Walla, Jan. 5, 1915. Sec., Dr. C. N. Suttner, Baker Bldg., Walla Walla.

Wisconsin: Madison, Jan. 12-14, 1915. Sec., Dr. John M. Beffel, 3200 Clybourn St., Milwaukee.

Connecticut July Report

Dr. Charles A. Tuttle, secretary of the State of Connecticut Medical Examining Board, reports the oral, practical and written examination held at New Haven, July 14-15, 1914. The total number of subjects examined in was 7; total number of questions asked, 70; percentage required to pass, 75. The total number of candidates examined was 20, of whom 17 passed and 3 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Yale Medical School		(1911) 81; (1914)	87.9, 89.2
University of Louisville		(1903)	83.6
College of Physicians and Sur., Baltimore		(1913) 76.7; (1914)	75.1
University of Maryland		(1914)	84
Harvard University		(1901)	82.5
Tufts College Medical School		(1905) 76.2; (1913)	78.5
College of Phys. and Surgs. in the City of N. Y.		(1902) 89.5; (1903)	83.3.
Syracuse University		(1913)	76.7
Jefferson Medical College		(1914)	84.7
University of Pennsylvania		(1913)	83.7
University of Vermont		(1913) 75.4; (1914)	88.8
	FAILED		
University of Southern California		(1902)	61.8
Maryland Medical College		(1913)	65.2
University of Canatania, Italy		(1912)	64.9

Michigan Reciprocity Report

Dr. B. D. Harison, secretary of the Michigan State Board of Registration in Medicine, reports that 32 candidates were licensed through reciprocity from February to September, 1914. The following colleges were represented:

College	Year Grad.	Reciprocity with
University of Colorado	(1911)	Colorado
Bennett Medical College	(1912)	Illinois
College of Phys. and Surgs., Chicago	(1907)	Missouri
Hahnemann Medical Coll. and Hosp., Chicago	(1910)	Texas
Northwestern University	(1906)	Illinois
Rush Medical College	(1901) (1907) (1912)	Illinois
University of Illinois	(1912)	Illinois
University of Louisville	(1912)	Illinois
College of Phys. and Surgs., Baltimore	(1907)	Illinois
University of Maryland	(1912)	Maryland
Harvard University	(1908)	N. Carolina
University of Michigan, Homeo. Med. College	(1912)	Illinois
University of Minnesota	(1907)	Ohio
Missouri Medical College	(1908)	Minnesota
St. Louis University	(1895)	Missouri
Syracuse University	(1913)	Missouri
Cincinnati College of Med. and Surg.	(1906)	New York
Cleveland College of Phys. and Surgs.	(1879)	Indiana
Cleveland Homeo. Medical College	(1905)	Ohio
Eclectic Medical College, Cincinnati	(1898)	Ohio
Starling Medical College	(1913)	Ohio
Starling-Ohio Medical College	(1897); (1903)	Ohio
University of Wooster	(1912)	Ohio
Western Reserve University	(1887)	Ohio
Jefferson Medical College	(1912)	Ohio
Woman's Medical College of Pennsylvania	(1910)	Minnesota
University of Vermont	(1908)	Penna.
Marquette University	(1908)	Vermont
Victoria University, Ontario	(1913)	Wisconsin
	(1874)	Minnesota

Oklahoma Reciprocity Report

Dr. John W. Duke, secretary of the Oklahoma State Board of Medical Examiners, reports that sixteen candidates were licensed through reciprocity from April 14, to July 14, 1914.

College	Year Grad.	Reciprocity with
University of Arkansas	(1910)	Arkansas
College of Phys. and Surgs., Chicago	(1901)	Wisconsin
Indiana Medical College	(1906)	New Mexico
University of Michigan, Homeo. Med. College	(1908)	Arkansas
Boston University	(1891)	Arkansas
Ensworth Medical College	(1910)	Nebraska
Meharry Medical College	(1913, 3)	Tennessee
Memphis Hosp. Medical College	(1902) Texas; (1912)	Tennessee
Tennessee Medical College	(1908)	Tennessee
University of Nashville	(1908)	Tennessee
University of Tennessee	(1900)	N. Carolina
Baylor University	(1913)	Tennessee
Physio-Medical College of Texas	(1905)	Texas

Utah July Report

Dr. G. F. Harding, secretary of the Utah State Board of Medical Examiners, reports the written examination held at Salt Lake City, July 6-7, 1914. The total number of subjects examined in was 19; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 6, of whom 5 passed, including 1 osteopath, and 1 failed. Two candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Rush Medical College		(1912)	84.8
University of Illinois		(1914)	86.9
Jefferson Medical College		(1913) 81.4; (1914)	85.2
	FAILED		
Meharry Medical College		(1914)	61

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Missouri Medical College		(1883)	Wyoming
St. Louis College of Phys. and Surgs.		(1905)	Illinois

Vermont July Report

Dr. W. Scott Nay, secretary of the Vermont State Board of Medical Registration, reports the practical and written examination held at Burlington, July 14-16, 1914. The total number of subjects examined in was 13; total number of questions asked, 90; percentage required to pass, 75. The total number of candidates examined was 23, all of whom passed. One candidate was licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Harvard University		(1905)	85.9
University of Vermont		(1912) 82.2; (1913) 81.7, 82.6; (1914)	76.4, 80.1, 81.5, 83.1, 84.1, 84.5, 84.5, 84.7, 85.2, 85.7, 85.7, 86.2, 86.8, 87, 87.2, 87.5, 87.5, 89, 93.6.

One candidate, a graduate of Dartmouth Medical School, 1913, was licensed through reciprocity with New Hampshire.

Book Notices

Frohse Anatomical Charts. Made under the supervision and assistance of the Institute of Anatomy, University of Berlin. Fourteen charts, with key to each chart. Price, $3.75 per chart. Chicago: A. J. Nystrom & Co., 1914.

This is an excellent series of fourteen wall charts illustrating human anatomy. More are promised. It consists so far of the following: skeleton and joints, 2; muscles, 2; viscera of thorax and abdomen, 4; peripheral nerves, 1; circulatory system, 1 (diagrammatic); ear, 1; eye, 1; median section through head and neck, 1; histology of skin, 1. Most are of life size, while those of the eye and ear and the median section through the head and neck are considerably enlarged. They are made from paintings which were planned and supervised by anatomists. They are admirably planned to show clearly and intelligibly the structures represented, and their scope includes the whole extent of those structures. They approach more closely to perfect anatomic accuracy than most representations of this kind. The painter, in making the main features stand out clearly and distinctly, has intentionally subordinated some details, as in the reduction of complexity in the arterial arcades of the mesentery. This is usually an advantage. The obturator nerve is represented as coming from the third and fourth lumbar nerves. Its usual origin from the second evidently did not exist in the subject from which the drawing was made. The left bronchus is represented as slightly larger than the right. On the whole the charts are unusually accurate, and excel in clearness, general scope and definiteness. In high schools and colleges they would be of very great interest and instructive value. Elementary physiology can hardly be intelligibly taught without some such help, and in laboratories of anatomy they are useful, especially on account of their wide scope, in correlating the structures in different regions of the body. Their admirable planning makes them a very effective means of instruction, and their artistic excellence and clearness will insure pleasure and satisfaction in their use.

Atlas und Lehrbuch wichtiger tierischer Parasiten und ihrer Uebertrager mit besonderer Berucksichtigung der Tropenpathologie. Von Dr. Med. et Phil. R. O. Neumann, o. ö. Professor der Hygiene und Direktor des hygienischen Instituts der Universitat Bonn und Dr. Med. Martin Mayer, Abteilungsvorsteher am Institut für Schiffs- und Tropenkrankheiten in Hamburg. Cloth. Price 40 marks. Pp. 580 with 1382 illustrations. Munich: J. F. Lehmann, 1914.

The fine series of medical atlases published by Lehmann has received a notable addition in the volume by Neumann and Mayer on animal parasites and their hosts. The colored figures number more than thirteen hundred and there are numerous and excellent diagrams and text figures. The beautifully colored lithographic plates are likely to remain for a long time the high water mark for work of this sort. On some of them more than twenty colors have been employed to bring out the features desired. Considerably more than half of the text is devoted to the protozoa, and the remainder to the higher animal parasites. The work does not pretend to be exhaustive and is more complete as respects the parasites of man than the parasites of domestic animals. So far as possible the writers have tried not to neglect questions of interest to the professional zoologist, but the main purpose of the work has been to further the interests of practical medicine. The book is indispensable to every active worker in the field of animal parasitology.

Nurses for Our Neighbors. By Alfred Worcester, A.M., M.D., Chief of Maternity Service, Waltham Hospital. Cloth. Price $1.25 net. Pp. 267. Boston: Houghton Mifflin Company, 1914.

Dr. Worcester calls nursing "our common problem." and evidently does not consider that it has been solved, or that it is even near solution, by the establishment of the modern hospital training schools for nurses. He laments the lack of personal service in nursing and says that the old-fashioned custom of neighbor nursing neighbor had much to commend it. Nursing, he states, "essentially is caring for the helpless, whatever may be the cause or form of the helplessness, whether it be that of infancy, or of old age, or of accident, or of sickness; but hospitals admit only certain forms of human helplessness, and generally only the rarer forms." Again: "Experience in hospital nursing is, of course, an indispensable part of the perfect nurse's training, but it is by no means the whole of it. In our hospital training schools nurses acquire wonderful technical skill, and an extensive knowledge of diseases. They become adepts in distributing themselves and in managing many patients. As assistants of the hospital physicians and surgeon they learn much of the science, but little of the art, of medical practice; whereas nurses need to know only little of the science, but all that is knowable of the art of helping the helpless." The author speaks highly of the training given in the German deaconess institutions, in which hospital nursing is considered only as one of the departments or specialties of nursing and the young women are trained in district visiting and general home nursing. Many of Dr. Worcester's criticisms are well founded. The impersonal attitude toward patients required of nurses in hospitals is out of place in home nursing and is resented, and rightly, by the family of the patient. Too often a nurse's attempts to institute a hospital regimen in a home create irritation and discomfort among the relatives which is bound to react on the patient. Frequently, also, the nurse appears callous instead of sympathetic, and this the family naturally resents. Superintendents of hospitals throughout the country would do well to read this book and apply some of the suggestions in the training of their pupil nurses.

Diseases of Children. By Various Authors. Edited by Archibald E. Garrod, D.M., M.A., F.R.C.P., Physician to St. Bartholomew's Hospital, London, Frederick E. Batten, M.D., M.A., F.R.C.P., Physician to the Hospital for Sick Children, London, and Hugh Thursfield, D.M., M.A., F.R.C.P., Physician to Out-Patients, Hospital for Sick Children, *London. Cloth. Price, $8.50 net. Pp. 1184, with 182 illustrations. New* York: Longmans Green & Co., 1913.

This is the work of twenty-two leading British pediatrists, and the aim of the editors is "a comprehensive and authoritative account of the present state of our knowledge of the diseases of children, set forth with a completeness which they believe has not hitherto been attempted in this country." With Thompson, Still, Cautley, Poynton, Hutchison and others among the collaborators, the book is an expression of the most authoritative teaching on diseases of children in Great Britain to-day. We have had occasion before in reviewing the books of Thompson, of Still and of Cautley, to emphasize the fact that the British authors are keen observers and good clinicians, and this book corroborates that opinion. True they have been quite untouched by the important work that has been done in Germany, especially on nutrition and its disturbances, but this very isolation and aloofness that has laid them bare to the charge of "provincialism" has a certain value in that it gives one a different point of view. Judged from this aspect, the present volume contains a wealth of useful information to both student and practitioner, and takes its place beside that of Cautley, as one of the two most comprehensive and complete British text-books on diseases of children.

Hygienisches Praktikum. *Ein Taschenbuch für* studierende Aerzte und Kreisarztkandidaten. Von Dr. Med. Paul Uhlenhuth, geh. reg. rat und ordentl. Professor der Hygiene an der Universitat Strassburg und Dr. Med. Hermann Dold, Privatdozent der Hygiene an der Universität Strassburg. Cloth. Price, $1.25. Pp. 272, with 90 illustrations. New York: Rebman Company, 1914.

This small book is intended as a laboratory supplement to lectures on hygiene. It covers such subjects as the hygiene of soil, water, food and drink, clothing, ventilation, light, etc. The object of the book is didactic and the methods are for the most part familiar. In connection with the microscopic examination of water it is not clear why organisms like Vorticella and Carchesium are figured while nothing is said about the algae and other micro-organisms sometimes responsible for offensive odors in water supplies. The bacterial examination of both water and milk is summarily dismissed. The discredited method of Eijkman for the detection of *Bacillus coli* is the only procedure mentioned. The methods given for the examination of meat, etc., are well described and up to date. One chapter deals with the determination of the amount of alcohol in beer and wine. Altogether the book cannot be said to be particularly well adapted for use in this country, although it doubtless serves a useful purpose in its place of origin.

Die Wasserstoffionen-Konzentration, Ihre Bedeutung für die Biologie und die Methoden Ihrer Messung. Von Professor Dr. Leonor Michaelis, Privatdozent an der Universität Berlin. Paper. Price, 8 marks. Pp. 210, with 41 illustrations. Berlin: Julius Springer, 1914.

This is the first of a projected series of monographs on subjects in the general field of plant and animal physiology, modeled after the "Monographs on Biochemistry" series which has been such an important addition to biologic literature. Michaelis' work on hydrogen-ion concentration is an excellent illustration of the possibilities of this method of publication, and serves to render accessible an authoritative discussion of one of the most important of the recent advances in the application of fundamental principles of physical chemistry to biologic processes. The recognition that "reaction" means the proportion of hydrogen and hydroxyl ions in a solution, and nothing else, has done much to clear up many misconceptions in physiology, especially concerning the chemical conditions existing within the blood and tissues, and has been the direct stimulant of much progress in biologic and clinical chemistry. Michaelis has been one of the chief contributors to this field of research, and presents his highly technical subject with simplicity and clearness. It is not necessary to recommend this work to chemists and biologists; but we may emphasize the importance of the subject of "reaction" to physicians who desire to be informed concerning the basal advances in medical sciences, and the opportunity which this book offers them to learn its principles and applications.

Ambidexterity and Mental Culture. By H. Macnaughton-Jones, M.D., M.Ch., Q.U.I. Cloth. Price 75 cents net. Pp. 102, with illustrations. New York: Rebman Company, 1914.

The author of this little book, written for the laity, being thoroughly convinced that right-handedness and left-sided speech are acquired characteristics, advocates the teaching of ambidexterity in the lower-grade schools. He believes that the alternating or synchronous action of the dual sided brain, left and right sides equally cooperating with the associated arm and hand, and equally educated in their functional powers and uses, must have its psychophysical influence on the individual. To him that nation whose people are ambidextrous has a great advantage over others. Whether his expectations will be realized or will remain mere hopes, the teaching of ambidexterity must result in great benefit to a person who may develop aphasia and right-sided hemiplegia later in life. The book is well written and permeated by the positiveness of conviction.

Kirkes' Handbook of Physiology. By Charles Wilson Greene, A.M., Ph.D., Professor of Physiology, University of Missouri. Eighth American Revision. Cloth. Price, $3 net. Pp. 790, with 509 illustrations. New York: William Wood & Co., 1914.

This new edition of Kirkes' standard work retains the general form and features of previous issues. New material has been added in accordance with recent advances in our knowledge of internal secretions, and the author notes that an attempt is made to use as a determining pedagogic horizon not only physiology but also clinical medicine and surgery. A book of this character which has stood the test of time and reflects the best thought and criticism of some of our best physiologists is a worthy addition to any medical bookshelf.

Manual of Medical Jurisprudence, Toxicology and Public Health. By W. G. Aitchison Robertson, M.D., D.Sc., F.R.C.P.E., Lecturer on Medical Jurisprudence, School of Medicine, Royal College of Surgeons, Edinburgh. Cloth. Price, $2.50. Pp. 560. New York: Macmillan Company, 1913.

The passage of new public health laws in England since 1908—the date of issue of the first edition—and the rapid advance in the methods of mechanical filtration of water as well as the increasing demand for the book has led the author to prepare a second edition revised to date. While medical jurisprudence, public health administration laws of evidence and rules of procedure in England differ widely from those in the United States, yet the high standing and wide experience of the author will entitle his book to consideration by any one interested in public health anywhere. The second edition is larger and better illustrated than the first.

Studien über die Fortpflanzung von Bakterien, Spirillen und Spirochäten. Von Dr. Med. E. Meirowsky. Paper. Price, 12 marks. Pp. 95, with 11 illustrations. Berlin: Julius Springer, 1914.

This work of Meirowsky was planned with the idea of proving that Schaudinn's idea of the protozoal character of the *Spirochaeta pallida* was correct. Using the method of vital staining in his studies on the tubercle, lepra, paratyphoid and other bacilli, as well as on various types of spirochetes, which he cultivated, he was led to conclusions almost diametrically opposed to the assumptions on which he based his work. A discussion of the methods employed and of the details of Meirowsky's work cannot be taken up. Suffice it to say that he shows that the *Spirocheta pallida* is to be classed among the lower forms of plant life, probably in the group of mycelial types, and is in no way related to the animal forms, such as the protozoa. The subject matter is clearly written, the studies outlined being presented in a convincing manner. Many photomicrographs and drawings add to the value of the work.

A Text-Book of Pathology for Students of Medicine. By J. George Adami, M.A., M.D., F.R.S., Strathcona Professor of Pathology, McGill University, and John McCrae, M.D., M.R.C.P., Lecturer in Pathology, McGill University. Second Edition. Cloth. Price, $5 net. Pp. 878, with 408 illustrations. Philadelphia: Lea & Febiger, 1914.

In this edition of this standard text there has been added a new chapter on "The More Important Infections and Their Prominent Features." Other changes include an endeavor to simplify the classification of tumors which is a praiseworthy effort; the relegation of the chapter on "Monstrosities and Abnormalities" to an appendix, which is a good idea, and the addition of ninety-one engravings and two colored plates, making a total of 395 of the former and thirteen of the latter.

Die Moderne Therapie der Gonorrhöe beim Manne. Ein Leitfaden für Studierende und Aerzte. Von Prof. Dr. Paul Asch. Paper. Price, 2.60 marks. Pp. 84, with 25 illustrations. Bonn: A. Marcus and E. Webers, 1914.

Dr. Asch discusses in this pamphlet a subject on which much has already been written of both a valuable and a useless nature. Dr. Asch, however, takes nothing for granted and, beginning on the threshold, writes in detail from his own experience. He seems particularly partial to the Janet irrigation treatment, and believes that when instituted early and cautiously this method will prevent serious complications. There is a section on vaccine therapy and one on endoscopy which reflect modern opinions.

Manual of Diseases of the Eye for Students and Practitioners. By Charles H. May, M.D., Instructor in Ophthalmology, College of Physicians and Surgeons, Medical Department, Columbia University, New York. Eighth Edition. Cloth. Price, $2. Pp. 440, with 377 illustrations. New York: William Wood & Co., 1914.

The seventh edition of May's popular book appeared in August, 1911, and was reprinted August, 1913. This, the eighth edition, brings the work up to date. Its popularity is attested by eight English editions, two German, two Italian, three French, two Dutch, two Japanese, four Spanish and four for the British Isles.

Der Tierversuch in Psychiatrie und Neurologie. Akademische Antrittsvorlesung. Von Dr. Gabriel Steiner, Privatdozent in Strassburg im Els. Paper. Price 80 pfennig. Pp. 22. Wiesbaden: J. F. Bergmann, 1914.

In this lecture the author passes in review the various experimental methods in psychiatry and neurology as applied to animal psychology. The brochure gains in interest as many of the animal experiments, for instance those of Otto Kalischer, Pawlow and von Bechterew, can be applied to the elucidation of problems in human physiology and psychiatry.

Medicolegal

Physician as Committee of Lunatic

(Lake et al. vs. Hope (Va.), 82 S. E. R. 738)

The Supreme Court of Appeals of Virginia affirms a decree in favor of the defendant, a physician, whom it was sought to remove as committee of one Lake, a lunatic, on the ground of alleged incompetency and lack of care, together with unwarranted extravagance in managing his ward's estate, which was worth over a quarter of a millon dollars. When the defendant entered on his duties as committee his ward was a very sick man, suffering from alcoholic neuritis and some cerebral disorder due to the same cause. He was a helpless invalid—could not sit up in bed, could not lift a glass of water to his mouth, could not even turn over in bed without assistance. Mentally he was always in a state of dread, thinking that something was happening to him. Such was his serious illness up to June, 1910, when the plaintiffs complained to the court that the defendant had failed or refused to call in the services of a specialist on the disease or diseases with which Mr. Lake was afflicted. However, in the spring of 1912, Mr. Lake had improved so much under the defendant's care that he could walk wherever he pleased, while his mental condition was practically that of a sane person who could act for himself in the management of his affairs, unless subjected to great and unnecessary mental strain. The court thinks that the evidence justified the appointment and retention of the defendant as committee, and the allowance to him of $100 a month for his services as physician and for his care of his ward's estate.

One of the items of expense complained of was the purchase and upkeep of an automobile and a boat for the use of Mr. Lake. It appeared that Mr. Lake, before his illness, owned and enjoyed an automobile, which was practically his only source of outside pleasure. This machine gave out and the defendant disposed of it in exchange for a new one, which exchange involved an outlay in money in the sum of $1,150, and the upkeep of it and the boat for the year cost $350.27, making a total of $1,500.27. A son of Mr. Lake acted as chauffeur. For a man of Mr. Lake's worth, incapable of any other recreation or pastime, this item of expense for his comfort and pleasure could not be reasonably considered extravagant or wasteful. Nor was the reasonable expense of a trip of several months, taken by Mr. Lake to a winter resort in Florida, objectionable.

Giving Treatments by Manipulation and Adjustment a Practicing of Medicine

(Harvey vs. State (Neb.), 148 N. W. R. 924)

The Supreme Court of Nebraska affirms a conviction of the defendant on eight counts, each of which contained this allegation: "Did then and there for remuneration unlawfully practice medicine by unlawfully treating and attempting to heal one (name of patient) for a bodily ailment through the manipulation and adjustment with the hands by the said Earle A. Harvey, of certain nerves, bones and tissues of the body of the said (name of patient) without first having issued to him, the said Earle A. Harvey, by the said State Board of Health of the state of Nebraska, a certificate or license to practice medicine." The court says that the information without doubt charged offenses under Sections 2717, 2723, and 2724 of the Revised Statutes of Nebraska of 1913.

To "operate on, profess to heal or prescribe for, or otherwise treat any physical or mental ailment of another," is "practicing medicine" by the express provision of Section 2724. It is unlawful in Nebraska to treat professionally and attempt to heal another by manipulation and adjustment of nerves, bones and tissues of the body without first obtaining a certificate or license from the State Board of Health, as provided in Articles 2 and 8, Chapter 27, of the Revised Statutes of 1913. Every such treatment constitutes a separate offense, although of the same individual and for the same physical or mental ailment, if such treatments are on different days and entirely independent of each other. So, although three counts in the information charged treatment of the same individual, but these treatments were on different days, and not dependent on each other, each was a violation of the law.

Much was said in the brief about the "liberty of the citizens to follow a profession" and to "pursue a lawful calling in a lawful manner." It was said that the state cannot "prohibit any calling or profession, save and except it be detrimental to the public welfare, public morals, public health, or a disturbance of the public peace. The state may not indirectly prohibit what it cannot prohibit directly, i. e., it may not prohibit the exercise and practice of chiropractic by refusing to provide an examination in the curriculum taught in the best schools and colleges of chiropractic—those branches deemed essential and put in operation by leading chiropractors—and compelling the chiropractor to procure a diploma from a medical college and take an examination in the curriculum of some of the sects of drug medication." But this court cannot amend the statutes, nor disregard the early decisions upholding and construing those statutes. The legislature has had ample opportunity to modify the laws, if they are considered harsh, unjust, or impolitic, and, not having done so, they must be enforced as the will of the public expressed through its lawmaking powers. All objections raised in the brief are answered by the plain provisions of the statute, as construed by early decisions of this court. The case of State vs. Buswell, 40 Neb. 158, involved what is called Christian Science healing, and was determined more than twenty years ago, upholding the statute. Little vs. State, 60 Neb. 749, involving the practice of osteopathy, was decided about fourteen years ago, and also upholds the statute.

Corporations Not Bound for Attendance on Injured Employees

(Journal & Tribune Co. vs. Lones (Tenn.), 169 S. W. R. 760)

The Supreme Court of Tennessee says that the company was sued by Dr. Lones for attendance on an employee who had his hand crushed while engaged in the line of duty in the company's pressroom. The injury was received at a late hour at night, when all officers, including the general manager and the assistant general manager, were absent from the publishing plant. The night editor was the highest agent of the company on duty, and, on being notified of the employee's condition, called Dr. Lones over the telephone to attend him. With regard to the first aid treatment, no question was made, the company having admitted responsibility therefor. The contest was over that portion of the physician's bill which represented subsequent visits to the injured man at a hospital to which he was removed, and for office treatment of him. Without determining just what the authority of the night editor was, in the absence of the general manager and his assistant, the court holds that a judgment rendered in favor of the physician, against the company, was properly reversed. It says that the rule is that even the general manager of a commercial corporation has no authority or power implied from his official position to commit his company to the payment of ordinary attendance (as contradistinguished from emergency attendance) by a physician or surgeon on an employee of the corporation, injured while in the line of duty.

Duty to Minimize Damages in Cases of Traumatic Neurasthenia

(Mickelson vs. Fischer et ux. (Wash.), 142 Pac. R. 1160)

The Supreme Court of Washington says that there is a duty, resting on every one who seeks to recover damages, to minimize the amount to be measured in dollars and cents. An allowance of damages in cases of traumatic neurasthenia touches the border of speculation at best, and it is manifestly unfair for one who seeks to recover of damages to put a defendant to the hazard of a further speculation by refusing the aids which science affords and which are available, or by postponing the time of treatment until after a trial and a verdict.

Society Proceedings

COMING MEETINGS

American Association of Anatomists, St. Louis, Dec. 28-30.
American Physiological Society, St. Louis, Dec. 27-30.
Amer. Public Health Association, Jacksonville, Fla., Nov. 30-Dec. 5.
Society of American Bacteriologists, Philadelphia, Dec. 29-31.
Southern Surgical and Gynecological Assn., Asheville, N. C., Dec. 15-17.
Western Surgical Association, Denver, Dec. 18-19.

SOUTHERN MEDICAL ASSOCIATION

Eighth Annual meeting, held at Richmond, Va., Nov. 9-12, 1914

The President, Dr. Stuart McGuire, Richmond, in the Chair

Early Diagnosis of Pulmonary Tuberculosis

Dr. Charles H. Cocke, Asheville, N. C.: I cannot too strongly urge the value and necessity of careful history taking with the expectation of finding some contact infection. For the examination the patient must be stripped to the waist. No examination is complete without careful inspection of the throat with a laryngeal mirror. The Roentgen ray is also invaluable. Of the tuberculin tests, the subcutaneous is the test *par excellence* where there is no fever, a focal reaction bespeaking active disease, while a febrile reaction alone, unless obtained with the initial small dose, implies a high tuberculin sensitiveness and consequently almost certain probability of active tuberculosis.

Significance of the von Pirquet Test

Dr. Thompson Frazer, Asheville, N. C.: A positive cutaneous reaction is less frequent in children than it was once thought to be. The view usually held, that the reaction has significance only during the first two or three years of life, is not borne out by recent figures, and we should be suspicious of a reaction occurring up to the age of 10. Annual tests should be instituted in the effort to detect early infection. A negative reaction, negative on the repetition of the test, is valuable evidence of the absence of tuberculosis unless the child is suffering from advanced disease or acute disease, especially measles.

State Policy in the Management of Tuberculosis

Dr. W. S. Rankin, Raleigh, N. C.: The combination of cooperative sanatorium and correspondence school is of mutual advantage, the one developing the other. The combination gives the state an educational organization analogous to the ideal system of education in operation in Wisconsin. Our cooperative sanatorium in this system is the central university where about one-tenth of the consumptive population is treated and is taught what constitutes the right kind of treatment for consumption. These alumni, on returning home and seeing other cases not being properly treated, enable the sanatorium to improve the medical supervision of consumptives throughout the state. The correspondence school, an adjunct of the central university or sanatorium, puts the state government in almost personal touch with its entire tuberculous population.

The Federal Government and Our Tuberculosis Problem

Mr. G. M. Cooper, Clinton, N. C.: The national government should form a cabinet office of secretary of the public health, to rank with the army and agricultural departments; then let the national Public Health Service through each state board of health, invite any county that desires to cooperate with it in the work. Those who agree are to pay one-third of the expense incidental to maintenance of a whole-time, efficient health officer. The state board of health is to pay one-third, and the national government the remaining third. Under this plan the local county government would select the officer, subject to approval by the state and national health authorities. In this manner local self-government would continue to exist and the health officer would have the mail franking privileges, so that he could reach all classes of citizens. Open-air schools and tent colonies in each county would be established, and each county would be the center of a public health school in which preventive medicine would be taught.

President's Address: The Profit and Loss Account of Modern Medicine

Dr. Stuart McGuire, Richmond, Va.: The most distinct profit and loss in modern medicine has come about through changes in medical education, which have been accomplished largely through the effort of the American Medical Association, the Association of American Medical Colleges and the Carnegie Foundation for the Advancement of Teaching. It was recognized that each year a progressively increasing number of low-grade practitioners were being graduated by medical colleges and licensed by state governments. An investigation of the medical schools showed that many of them were poorly equipped, had scant clinical material and lacked sufficient funds to procure the necessary time of efficient teachers. To remedy this evil a deliberate and systematic movement was inaugurated to lessen the number and improve the quality of the men who were being added to the ranks of the profession. By moral suasion, by state legislation and by the combination of the better schools, the entrance requirements were advanced, the number and length of the teaching sessions were increased, the character and scope of the curricula were improved, and the minimum number and approximate pay of the full-time teachers were specified.

While the profit side of the specialist's account is large, still on the opposite page we find some items of loss. The high esteem in which the specialist is held, the pecuniary rewards which his services command and the advertising opportunities offered by his position have made him a victim of imitators and imposters, who deceive and defraud the public. Modern medicine is not responsible for the quack and charlatan, but it is responsible for the members of the regular profession found in every town and city who claim to be specialists, but who really do a general practice, and for others who, while they may limit their work to certain diseases, are not qualified as experts and have no more knowledge or experience in their diagnosis and treatment than the average general practitioner.

Pleural Effusions of Artificial Pneumothorax

Dr. Mary E. Lapham, Highlands, N. C.: Our five years' experience with artificial pneumothorax has led us to believe that the tendency to pleural effusions increases with the length of time the compression is maintained. We have had three types of pleural effusions, those developing without any clinical manifestations and no suggestions of any active process. The fluid may be first detected by the rise in pressure in the manometer, or by filling the needle, or be heard as a splashing sound by the patient. We call these myocardial effusions. A second class has developed in consequence of repeated traumatisms of the pleura as a result of an acute infection, such as an angina, or of chilling, or from other reasons commonly associated with ordinary pleurisies. We call these infectious pleurisies. A third class is due to tuberculous nodules and process in the pleural surfaces and these seem to have been favored by the separation of the pleural surfaces by the artificial pneumothorax.

DISCUSSION

Dr. W. S. Leathers, University, Miss.: There is no problem in public health that has more aspects than that of tuberculosis. There is no problem that has more difficulties associated with its solution. The best plan of attacking the tuberculosis problem is on a cooperative basis.

Dr. C. W. Stiles, Wilmington, N. C.: I take issue with the idea that the federal government is doing very little in regard to this problem. Every pound of meat that comes into a state has been inspected by the Department of Agriculture for tuberculosis. The federal government is carrying out certain restrictive measures in interstate commerce according to the law, which is no small contribution to the fight against tuberculosis. Unless the medical profession is willing to set an example by controlling its own members with regard to spitting, etc., it is foolish for us to go to the federal government and ask the state to change the Constitution of the United States in order to put local police power into the hands of the federal government.

Dr. Charles L. Minor, Asheville: The von Pirquet test has been misused. I have had cases of full-grown adults sent to me on account of a positive von Pirquet. We must not reach the conclusion that because every case reacts to this test, it is necessarily active tuberculosis. We must differentiate between latent and active tuberculosis; otherwise there will be great harm done.

Dr. Thompson Frazer, Asheville: The reason we fail to detect tuberculosis early is that we do not recognize it as a chronic disease with relapses.

Dr. W. L. Dunn, Asheville: A firm conviction on the part of the physician is necessary to impress a patient that he is ill with tuberculosis. The average physician is afraid to make an early diagnosis of tuberculosis and say so firmly to the patient, because he is afraid the patient will be unnecessarily treated or his activities will be interrupted.

Dr. E. C. Thrash, Atlanta: Many practitioners have made a diagnosis of tuberculosis from the fact that they obtained a reaction, and the result was that it would throw a well person into a panic and perhaps subject him to many inconveniences, possibly a trip away, while other persons subjected to the tests would have the disease. I have seen cases of far-advanced tuberculosis in which physicians said they did not have tuberculosis because the von Pirquet or tuberculin test proved negative.

Dr. William R. Kirk, Hendersonville, N. C.: We should not attach too much importance to the temperature curve alone, for very often we get the same curve in cases of malignant disease.

Dr. D. M. Malloy, Mobile: In New South Wales it is obligatory on every physician to report every case of tuberculosis. The law is stringent on this point, and carries with it a severe penalty in the way of a fine, and possibly imprisonment. The reporting of each case also carries with it a reward of five dollars.

(To be continued)

MEDICAL SOCIETY OF VIRGINIA

Annual Meeting held in Washington, D. C., Oct. 27-30, 1914

(Concluded from page 1978)

Trachoma

Dr. Taliaferro Clark, Washington, D. C.: Trachoma is protean in its manifestations. In the mucous membrane the lymphoid cells are stimulated and undergo enormous proliferation. There are pannus, granulations and the formation of scar tissue. The color depends on the vascularity. It requires an abrasion of the mucous membrane and moisture, and hence occurs most frequently in those living under bad hygienic surroundings. It constitutes a grave social and economic problem. From 1899 to 1901, 8.5 per thousand of all eye infections were due to this. Eighteen per cent. of all blindness in Russia is due to it. One thousand cases a year are treated in the Lemberg Hospital. In Posen and Silesia it is very prevalent. In Japan, of 400,000 recruits, 23 per cent. had trachoma. It is a world-wide disease. All seeking entrance to America are examined for trachoma. Twenty-two and seven-tenths per cent. of western Indians and 13 per cent. of Indians in Virginia have it. Only nineteen cases in negroes were found in a thousand examinations. The negro has been protected in the past only by his lack of opportunity to contract it.

Trachoma: Methods Adopted for Its Control in Eastern Kentucky

Dr. John McMullen, Washington, D. C.: In 4,000 eye examinations in Kentucky, 12 per cent. were found to have this disease. On some of the creeks, 75 per cent. of families had it. No class were exempt. Untreated it lasts a lifetime. The large family towel is a source of danger, and the lack of good light in the houses contributes. Prevention is synonymous with education. Teachers' institutes and church organizations have been enlisted. Parents and teachers had copies of popular pamphlets mailed to them. House-to-house visits were made and instruction given. District nurses are employed. Surgical treatment under a general anesthetic must be used for young children, and the period of treatment immediately following is very important. Three hospitals have been established, of fifteen beds each. Two of these are 20 miles from a railroad. They are kept scrupulously clean as an object lesson. Patients are given separate toilet articles. There is a dispensary connected with each. The first was opened in September, 1913, and the last in March, 1914. Over ten thousand cases have been treated. The average daily total cost of each hospital is $17.30. Gratifying and encouraging results have followed. Many who were formerly paupers have been made self-supporting. Trachoma should be a reportable disease in every state.

DISCUSSION

Dr. Joseph A. White, Richmond: Fortunately we are free from trachoma in the cities. I recently wrote to all the oculists in the state; very few had had any experience with this disease. In my experience of over thirty years in Richmond, I have seen not more than four or five cases. We are almost as much in the dark as to the treatment as to the cause. An effort to prevent corneal complications is important to prevent blindness.

Dr. C. R. Dufour, Washington, D. C.: Hospital work is the only way to eradicate this disease. It behooves the government to establish hospitals. Some in any given family seem to be immune. I think treatment should be made compulsory, as many accept it as a visitation of the Almighty and make no effort to get cured.

Dr. C. M. Miller, Richmond: I have seen but four cases in fourteen years, but we are confronted by this menace. The negro is not immune. The conditions under which he lives are horrible, and if it gets a start it will spread rapidly. The board of health should take a hand in this work.

Dr. W. E. Driver, Norfolk: At Hampton Normal School I had recorded 30 per cent. of Indians as having trachoma, but it was different from that which I have seen abroad; I think many of them are cases of tuberculosis. I have never seen a case in a negro, though in that school the whites and negroes are intimately associated.

Dr. Taliaferro Clark, Washington, D. C.: Tuberculosis is a destructive disease, while trachoma has new tissue building. In examining probably one million eyes, I have seen only one case of tuberculosis.

Dr. Joseph A. White, Richmond: I have encountered opposition from the oculists in the matter of public lectures on the eye, because they say they would be accused of advertising themselves. This method has the approval of the American Medical Association.

Dr. E. G. Williams, Richmond: We of the state health department have not been unmindful of this menace, but have tried to attack our problems at the point where the greatest need appears. The typhoid problem is the most pressing. We recently issued 50,000 copies of a bulletin on defective hygiene, and defective eyes are treated of in this.

Acidity, Alkalinity and Anesthesia

Dr. George W. Crile, Cleveland: Acidity of the blood is increased by muscular effort, emotional disturbances, surgical shock, infections, asphyxia, inhalation anesthetics, and excision of liver and kidneys. Ether, nitrous oxid and alcohol produce acidity. A certain degree of acidity is incompatible with life. At the point of death the blood is always acid. May not the acidity be the actual cause of death? I think it is. If epinephrin in sufficient quantity be injected the acidity is controlled. Acidosis results from starvation, diabetes and Bright's disease. The acidity of the blood is increased in two seconds after the beginning of nitrous oxid anesthesia. Acid inhibits the action of the cerebral cortex, but stimulates that of the medulla.

DISCUSSION

Dr. W. P. Carr, Washington, D. C.: The old physiologists said alkaline blood was necessary to carry off the carbon dioxid. This is a new and rather startling theory—acidity the cause of anesthesia. We have not yet grasped the importance of anoci impulses which reach the brain. The field opened up by this paper is enormous; we must have time to digest it. We can get this lesson at least, to make anesthesias as short and as light as possible, and use anoci methods.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Albany (N. Y.) Medical Annals

November, XXXV, No. 11, pp. 575-638

1 Sex Hygiene. H. L. K. Shaw, Albany.
2 Sex Education in Schools. I. S. Wile, New York.
3 Question of Sex Education. C. P. McCord, Albany.
4 Public Instruction in Sex Hygiene. W. F. Snow, Sacramento, Cal.
5 Sex Question from Woman's Standpoint. R. S. Morton, New York.
6 Albany Hospital: Twelfth Report of Pavillion F, Department for Mental Diseases for Year Ending September 30, 1914. J. M. Mosher, Albany.

American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

November, LXX, No. 5, pp. 689-864

7 *Necessity of Constantly Looking for Cancer of Uterus. J. H. Carstens, Detroit.
8 *Abdominal Distention Following Operations on Pelvic Viscera. F. Reder, St. Louis.
9 *End-Results After Operation in One Hundred and Nine Cases of Displacement of Uterus, Bladder and Rectum. H. A. Wade, Brooklyn.
10 *Renal Damage from Calculi. H. D. Furniss, New York.
11 *Myomectomy with Extensive Resection of Uterus in Fibroid Tumors. X. O. Werder, Pittsburgh.
12 *Two Cases of Cancer of Uterus Apparently Cured by Postoperative Infection. J. W. Poucher, Poughkeepsie, N. Y.
13 Factors Determining Morbidity of Surgical Cases. C. W. Moots, Toledo.
14 Mineral Springs of Saratoga. D. C. Moriarta, Saratoga Springs, New York.
15 *Technic of Intestinal Anastomosis, with Special Reference to Modification of Maunsell's Method. F. D. Gray, Jersey City, New Jersey.
16 *Delayed Union in Non-Infected Epigastric Wounds. M. F. Porter, Fort Wayne, Ind.
17 Ruptured Gastric and Duodenal Ulcer. E. A. Vander Veer, Albany, N. Y.
18 Biliary Surgery. J. F. Erdmann, New York.
19 *Anastomosis of Gall-Bladder to Stomach: "Cholecystogastrostomy." J. H. Jacobson, Toledo.

7 and 10. Abstracted in The Journal, Oct. 10, 1914, p. 1319.

8, 11 and 12. Abstracted in The Journal, Oct. 17, 1914, p. 1418.

9. **End-Results After Operation of Displacement of Uterus, Bladder and Rectum.**—The body of the uterus was replaced to its proper position in the pelvis by the abdominal route combined with some sort of vaginal repair in sixty-one cases. Of the 109 cases investigated by Wade, twenty-four were made by plication of the round and broad ligaments on the upper and anterior surface of the body of the uterus, according to the method of Coffey, combined with some form of repair of the cervix or of the vagina. The operation has been fairly satisfactory. In twenty-one cases the patient has had a restoration of the pelvic viscera to their proper position, and in twenty of the cases the patients felt an improvement after the operation. Five became pregnant subsequently; one miscarried at the twenty-fourth week of her pregnancy; four went to term and were delivered vaginally of living children.

The uterus was suspended by plication of the round and broad ligaments without the aid of vaginal surgery in three cases. The uterus was movable and in place in two cases, and in two cases the patients felt improved after the operation. One became pregnant subsequently, carried her pregnancy to the twelfth week, and then aborted. The uterus was suspended from the anterior abdominal wall with No. 2 chromic catgut combined with some form of vaginal repair in thirty-three cases. The uterus remained in its proper position in twenty-three cases. In twenty of the cases the patient felt some improvement after the operation; nine women became pregnant and eight were delivered of living babies; one died. The uterus was suspended from the anterior abdominal wall without repair of the vaginal tract in seven cases. One became pregnant; three felt better after the operation, and in five cases the uterus was in place and appeared to be movable.

Four cases of the Baldy or Webster method suspensions combined with a repair of the vaginal canal were investigated. Two of the patients showed the uterus movable and well placed, and two felt some improvement after the operation. None of the patients had become pregnant. The vaginal method of supporting the uterus, and with it the bladder and rectum combined with the suspension from above, has been satisfactory to the patient in forty-two of the sixty-one cases examined. The uterus has remained in position and has been movable in fifty of the cases; fourteen of the patients became pregnant; two aborted; ten had normal deliveries, and two were delivered by the aid of forceps. Thirty-six of the patients had had the uterus supported by repair of the posterior vaginal wall without suspension; twenty-eight of these women felt improved after the operation, and in thirty cases the uterus was movable and in good position. The prolapse of the rectum was relieved in ten of the cases examined. The bladder in fifteen cases, in which it was involved in the procidentia, was placed in its proper position in the pelvis in nine cases. Eight of these women became pregnant after the operation. The mobility of the uterus has never been interfered with when replacement was affected by support from below, and flexions of the body on the cervix have not resulted from the operation. One death occurred which was probably due to cardiac embolism.

15. **Technic of Intestinal Anastomosis.**—Gray substitutes a continuous locking suture for the interrupted sutures used by Maunsell. The suture begins at the approximated mesenteric borders in the form of a circular stitch enclosing *all* four mesenteric leaves, the tail of the suture being left sufficiently long to tie to the other end on its return. The suture is then carried rapidly around the aperture of anastomosis, the stitches, penetrating 1/8 to 1/16 of an inch below the free borders and placed about that distance apart, locked at each thrust by passing the needle under the loop before drawing it home, which should be done under considerable tension. The final tie leaves a single knot that of necessity lies within the bowel.

16 and 19. Abstracted in The Journal, Oct. 10, 1914, p. 1320.

American Journal of Physiology, Baltimore

November, XXXV, No. 4, pp. 367-495

20 Acoustic Reflexes in Decerebrate Cat. A Forbes and C. S. Sherrington, Boston.
21 *Faradic Stimuli: Physical and Physiologic Study. J. Erlanger and W. E. Garrey, St. Louis.
22 *Prothrombin. W. H. Howell, Baltimore.
23 *Coagulation of Lymph. W. H. Howell, Baltimore.

21. **Faradic Stimuli.**—Erlanger and Garrey report in detail the results of a study of the shocks yielded by induction coils of the types commonly used in the laboratory, with a view to the determination of their configuration *in relation* to their efficiency as stimuli under conditions commonly obtaining in physiologic investigations. The deficiencies of the string galvanometer as an indicator of currents of such short duration as induction shocks are discussed, and a rheotome method (the gap method) of making it possible to conveniently determine qualitatively and quantitatively the configuration of shocks with the string galvanometer, is described. A platinum contact key for make shocks is also described.

22. **Prothrombin.**—Howell found prothrombin may be precipitated by acetone from oxalated blood-plasma and be obtained in solution free from the other fibrin factors, with the possible exception of traces of antithrombin. The prothrombin is converted to active thrombin in the presence of calcium salts. No third factor seems to be necessary for

this activating process. The activating property of calcium salts is exhibited to a much less extent by strontium salts, and very feebly by magnesium salts. The prothrombin in salt-free or salt-poor solutions is weakened but not destroyed by heating to 60 C. Aqueous extracts of the blood-platelets show the presence of both prothrombin and thromboplastin. Prothrombin (probably some thromboplastin also) is contained in the plasma of circulating blood. In shed blood disintegration of the platelets furnishes an additional supply of prothrombin and thromboplastin.

23. **Coagulation of Lymph.**—The lymph used by Howell in his experiments was obtained from dogs by placing a cannula, vaselined along its inner surface, into the thoracic duct. The animals were anesthetized with morphin and ether. The flow from the cannula was variable, but in fed animals with a milky lymph was quite abundant, averaging about 0.5 c.c. to a minute. He found that the coagulation-time of lymph varies greatly. In well-fed animals with much chyle-fat in the lymph coagulation is slower than in the clear lymph from fasting animals, but the addition of thromboplastic material (tissue-extract or kephalin solutions) causes the lymph to clot promptly and firmly. Lymph plasma contains antithrombin in the same concentration as in blood-plasma. When freed from corpuscles by long centrifugalization the lymph plasma clots with great slowness, owing to a relative excess of antithrombin. Addition of kephalin solution to such plasmas causes prompt clotting. The thromboplastin in solution in lymph-plasma is less in amount than in the blood-plasma. In shed lymph a new supply of thromboplastin is furnished by the lymphocytes, but more slowly than in the case of the blood in which the additional thromboplastin is derived from the unstable platelets. Prothrombin is present in solution in the circulating lymph. Its activation to thrombin by calcium is retarded or prevented by the relative excess of antithrombin.

Archives of Internal Medicine, Chicago

November, XIV, No. 5, pp. 609-768

24 *Pulse-Flow in Brachial Artery. A. W. Hewlett, Ann Arbor, Mich.
25 *Total Non-Protein Nitrogen and Urea of Blood in Health and in Disease, as Estimated by Folin's Methods. W. Tileston and C. W. Comfort, Jr., New Haven, Conn.
26 *Epidemic of Streptococcus Sore Throat in Jacksonville, Ill. Traced to Milk of Cows Affected with Streptococcus Mastitis. J. A. Capps and D. J. Davis, Chicago.
27 Specific Hyperleukocytosis. F. P. Gay and E. J. Claypole, Berkeley, Cal.
28 *Experimental Study of Methods of Prophylactic Immunization Against Typhoid. F. P. Gay and E. J. Claypole, Berkeley, Cal.
29 Case of Diabetes Insipidus. R. Fitz, Boston.
30 *Experimental Pathology of Stomach. W. W. Hamburger and J. C. Friedman, Chicago.
31 *Clinical and Bacteriologic Study of Hexamethylenamin as Urinary Antiseptic. L. H. Levy and A. Strauss, New York.
32 *Blood-Platelets and Tuberculosis. G. B. Webb, G. B. Gilbert and L. C. Havens, Colorado Springs, Colo.
33 *Pulmonary Physical Signs and Roentgen-Ray Findings in Healthy Adults. L. Hamman and F. H. Baetjer, Baltimore.

24. **Pulse-Flow in Brachial Artery.**—In febrile patients showing palpable types of the dicrotic pulse, Hewlett found that the brachial flow curves show characteristic changes. These consist in a marked backflow in the brachial artery just after the entrance of the primary pulse-wave and in an inflow and outflow with the dicrotic wave. In the form of pulse described as monocrotic there is also a marked outflow just after the primary pulse-wave, but no marked dicrotic wave follows. This type of pulse is closely related to the typical dicrotic pulse. The primary wave in each has a pointed character. Other things being equal, the pointed character of the pulse in the arm is increased by vasoconstriction of the arm arterioles and is diminished by their relaxation. In many, if not in all cases, factors outside of the arm play a part in the production of the jointed pulse. Among such possible factors are (1) a brief systolic output from the heart and (2) a dilatation of certain vascular areas outside of the arm, the most important being the splanchnic vessels.

25. **Non-Protein Nitrogen and Urea of Blood in Health and Disease.**—Analyses of the blood for total non-protein nitrogen and urea nitrogen were made by Tileston and Comfort by the methods of Folin in five healthy adults and 142 hospital cases. In the fasting healthy adult the total non-protein nitrogen varied between 22.9 and 25 mg. per 100 c.c. of blood, and the urea nitrogen between 12 and 14 mg. The effect of a full meal with meat in the case of the healthy adult was a rise of total non-protein nitrogen averaging 4.7 mg., and of urea, averaging 2.5 mg. In both chronic interstitial and chronic diffuse nephritis the cases without symptoms of uremia showed normal or moderately elevated values; the uremic cases, with one possible exception, showed a great increase in both nitrogen and urea. The excretion of phenolsulphonephthalein was roughly proportionate to the degree of retention; the cases with 100 mg. or over of total nitrogen all showed 5 per cent. or less phenolsulphonephthalein excretion. Many cases, however, with a considerable impairment of phenolsulphonephthalein excretion showed no signs of retention, and a moderate amount of retention of waste nitrogen often occurred with no impairment of the elimination of phthalein. The proportion of urea nitrogen to the total non-protein nitrogen in disease varied from 32 to 85 per cent. Where the nitrogen was normal the urea usually was about one-half the total nitrogen; where it was elevated, the urea usually but by no means always constituted about 70 per cent. of the whole. No reason could be found for these variations. The determination of the total non-protein nitrogen alone is therefore more valuable than that of the urea alone. The determination of the total non-protein nitrogen is a great aid in the prognosis of chronic nephritis. Patients showing over 100 mg., with one exception, did not live more than thirty-five days.

The results of blood analysis furnish the best guide as to the diet to be given in nephritis; cases with a considerable retention require a restriction of the protein, and by this means a return to normal figures may be brought about, if the azotemia is not too pronounced. In cases of outspoken uremia, however, no marked reduction of the azotemia has resulted from a protein-poor diet. Nephritis with a normal amount of non-protein nitrogen does not call for any marked decrease of protein in the diet. Many other lesions were investigated in this connection. For the results obtained in these cases the original article should be consulted.

26. **Epidemic of Sore Throat Traced to Milk of Cows.**—There were 348 cases of sore throat in the series investigated by Capps and Davis, most of them complicated by enlargement of the cervical glands and many by a marked exudate. Cultures from a number of throats showed a hemolytic streptococcus. In a canvass of 913 households, in 60 per cent. of the cases of sore throats, milk or cream from Dairy X was used, although this dairy supplied only 17.5 per cent. of the households. The morbidity rate in one institution supplied by Dairy X was 40 per cent.; in four other institutions supplied by other dairies it averaged 1.7 per cent. Among 1,000 customers of Dairy X, 215, or 21.5 per cent., developed sore throat, whereas among 6,416 customers of other dairies, 133, or 2.1 per cent., developed the disease. As a result of a systematic inspection of 416 cows on thirty-eight dairy farms, eleven cows with garget were found. Bacteriologic examinations revealed hemolytic streptococci in the milk of two of these diseased cows. The milk of both of these cows was distributed by Dairy X. As Dairy X did not pasteurize the cream at all and the milk very inadequately, Capps and Davis conclude that the streptococci originating in the bovine mastitis were probably responsible for the epidemic. Because of the extensive distribution of ice cream, manufactured from the Dairy X cream, they suspect that ice cream played an important rôle as a carrier in this epidemic.

28. **Methods of Prophylactic Immunization Against Typhoid.**—The history of the development of artificial immunization against the typhoid bacillus in animals and human beings is reviewed by Gay and Claypole, and some of the many preparations of the typhoid bacillus used for this purpose are discussed. Particular attention is drawn to the reputed advantages of living sensitized typhoid vaccine (Besredka) as opposed to other types of vaccine. The many vaccines that are still being advocated indicate that the best vaccine

has not yet been found and that the best method of proving which is the best vaccine has not been determined. Sensitized cultures of the typhoid bacillus, whether whole or as sediment, produce little or no reaction in human beings with the possible exception of those who have previously suffered from typhoid or have been immunized. By comparing their results with those of certain other observers, the authors conclude that a considerable degree of reaction, both local and general, is avoided by the use of these sensitized cultures, which possess the further advantage, so far as their experimental work can determine, of producing a more durable type of immunity.

The authors recommend vaccination at short intervals (two days) in human beings, which is rendered quite possible with the mild vaccine they employ, and is evidenced from animal experimentation, as giving rise to less toxic effect and to fully as durable an immunity as vaccination at longer intervals. This type of vaccination has the further advantage of completing the prophylactic treatment of three injections within a week. They further believe that a polyvalent vaccine derived from strains of the typhoid bacillus isolated in the vicinity of patients who are to be treated is advantageous, judging largely from the work of other observers. A further advantage in the use of sensitized cultures is that a polyvalent vaccine, no matter how recently the strains may have been isolated, is also almost entirely free from untoward effect. They recommend for prophylactic immunization against typhoid, three injections of the sediment of a dried, ground, sensitized culture of several local strains of the typhoid bacillus mixed together, given at two-day intervals and in a dosage of $\frac{3}{32}$ mg. of the original dried culture, which corresponds, as has been determined, to a dosage of approximately 750 million living typhoid bacilli.

30. **Experimental Pathology of Stomach.**—Hamburger and Friedman found that moderate pyloric stenosis in dogs (ligature around pylorus tied loosely) causes little or no change in stomach motility, acidity or size. Marked obstruction (ligature tied sufficiently tight to produce marked peristalsis and anemia of the pylorus) causes motor insufficiency, continuous secretion (hyperacidity) and hypertrophy and dilatation of the stomach. Complete occlusion (ligature or silver nitrate injection causing secondary occluding edema) results in inanition, vomiting, convulsions (gastric tetany) and death of the animal in from forty-eight to 120 hours. The pyloric ligature (stenosis) results in a motor insufficiency with food retention which in turn sets up a continuous secretion with the constant presence of free hydrochloric acid. Pyloric obstruction with resulting motor insufficiency and continuous secretion are probably the most important factors in the production of chronic experimental ulcer. While the foregoing results concern experimental chronic ulcer, the authors conclude that it is more than likely that primary partial pyloric stenosis (from whatever cause) with secondary motor insufficiency and continuous secretion are largely responsible for the progression and delayed healing of chronic ulcer in man.

31. **Hexamethylenamin as Urinary Antiseptic.**—The urines from 91 patients were examined by Levy and Strauss. The greater number of these patients received 7 gm. of hexamethylenamin three times a day. Most of the urines were examined twice and some of them as many as six times. About 250 urines were examined. The 91 cases may be divided as follows: surgical 42, medical 32, genito-urinary 17. The urines of all of the 91 patients gave a test for formaldehyd varying from 1:20,000 to 1:5,000. The urines from 72 patients showed the presence of formaldehyd in the strength of 1:10,000. The colon bacillus was the most common invader of the urinary tract, occurring in 64 per cent. of the cases. To be of [illegible] therapeutic value, the hexamethylenamin or its derivative would have to be excreted in a concentration strong enough to be either inhibitory or bactericidal. The action of a 10 per cent. solution of hexamethylenamin was tried on various organisms.

The authors found that formaldehyd to be of value must be liberated in strengths varying from 1:15,000 to 1:5,000, depending on the organism the growth of which is to be inhibited. To be of bactericidal value it must be liberated in strengths from 1:5,000 to 1:1,000, also depending on the organism. For the destruction or inhibition of growth of organisms other than the typhoid bacillus a high acidity is necessary. This high acidity in combination with the formaldehyd may produce injury to the kidney tissue. Hexamethylenamin, therefore, appears most efficacious as a prophylactic during the course of typhoid for the prevention of a pyelitis or cystitis.

32. **Blood-Platelets and Tuberculosis.**—Blood-platelets are consistently increased in the tuberculosis of man and guinea-pigs. At an altitude of 6,000 feet, blood-platelets are increased in the circulating blood of man and guinea-pigs. Blood-platelets would appear either to contain or to supply opsonin. Blood-platelets added to a lethal dose of tubercle bacilli appear to modify the course of infection or to prevent it. The addition of serum to a mixture of blood-platelets and tubercle bacilli appears to interfere with this modification.

33. **Pulmonary Physical Signs and Roentgen-Ray Findings in Healthy Adults.**—A careful physical examination of the chest of fifty healthy adults by Baetjer showed the pulmonary physical signs to be practically normal in eleven, definitely though not markedly altered in thirty, more obviously altered in seven and greatly changed in two. That the changes in the physical signs are the expression of corresponding changes in the lungs is borne out by the results of the Roentgen-ray examinations made by Baetjer. Forty-six of the series had roentgenograms taken and in only six were the apices found to be normal. The results of the physical and Roentgen-ray examinations, although agreeing in a large proportion of the cases, still not infrequently are at variance. In twenty-two of the forty-six cases the agreement is complete. The disagreement in the remaining twenty-four cases is as follows:

In six instances the physical examination shows practically normal conditions, whereas the Roentgen-ray examination shows slight apical clouding. In eighteen instances the physical examination indicates a definite lesion at one apex, whereas the Roentgen-ray examination shows clouding at both apices. In four instances the physical examination indicates a slight lesion at one apex whereas the Roentgen-ray examination shows clouding at the opposite apex. In all four instances the changes in the physical signs were very slight. In two instances the physical examination indicates slight abnormalities at one apex whereas the Roentgen-ray examination shows both apices to be clear. In four instances the physical signs indicate a lesion at both apices, whereas Roentgen-ray examination reveals clouding at only one apex.

Archives of Ophthalmology, New Rochelle, N. Y.

November, XLIII, No. 6, pp. 591-694

34 Tangent Curtain. A. Duane, New York.
35 Sclerocorneal Trephining for Glaucoma, Complications and Failures in One Hundred Cases. A. Quackenboss, Boston.
36 Simple Angioma of Choroid. J. M. Love, Boston.
37 Easy Method of Enucleation. F. Fergus, Glasgow, Scotland.
38 Case of Extensive Accidental Corneal Splitting. A. C. Snell, Rochester.
39 Attachment for Taking Light Fields. D. N. Dennis, Erie, Pa.
40 Case of Bilateral Keratoconus, Examined Anatomically; Hemosiderin Ring of Cornea in Keratoconus and Hemosiderosis of Eye in Diabete Bronze. B. Fleischer, Tuebingen.
41 Self-Supporting Eye Clinic for Working People. M. M. Davis, Jr., and E. Hartshorn, Boston.

Boston Medical and Surgical Journal

November 19, CLXXI, No. 21, pp. 767-802

42 *Chlorophyll Test of Gastric Motility. F. W. White, Boston.
43 Increase of Total Nitrogen and Urea Nitrogen in Cerebrospinal Fluid in Certain Cases of Insanity; Uric Acid Content of Blood. H. M. Adler and B. H. Ragle, Boston.
44 *Use of Radium in Cancer and Allied Conditions at Huntington Hospital. T. Ordway, Boston.
45 Intra-Abdominal Hemorrhage Complicating Normal Pregnancy. F. G. Balch and R. M. Green, Boston.

42. **Chlorophyll Test of Gastric Motility.**—In answer to the question whether the test is better than older methods of

testing gastric motility, White says that it is simpler than most; makes little demand on the appetite, and is very easy on the stomach. It is readily used in patients who are vomiting, or who are on a very simple light diet, in which a big meal is uncomfortable or impossible. The sources of error are few and probably unimportant and no considerable disturbance of motility escapes detection. It is an easy method of following results of treatment of gastric stasis. It is probably not superior in accuracy and not likely to replace the best of the older tests, but it is simpler and easier for both physician, and patients in a large group of cases and gives an extra "string to our bow."

44. **Use of Radium in Cancer and Allied Conditions.**—The best, apparently curative, results from radium therapy, Ordway states, are obtained in certain types of skin and other localized forms of cancer. In myelogenous and lymphatic leukemia the blood picture becomes almost normal, the spleen is reduced markedly in size and certain symptoms may be relieved without toxemia resulting. In many cases of true cancer which have advanced beyond the operable stage, or those recurring after operation, improvement from radium therapy may follow not only subjectively but in the local condition. This improvement may include relief from discharge, hemorrhage and pain; cleansing or healing of ulceration; diminution in size or disappearance of the growth. Such cases, however, are rarely cured. Even large growths sometimes disappear under the influence of radium but metastasis or spreading of the growth to other parts is not prevented, or the patient may succumb to the rapid disintegration of the original growth. Newer methods may improve these results of radium therapy; at present its proved value is limited, but occasionally cases beyond these well recognized limits are distinctly benefited.

Delaware State Medical Journal, Wilmington

September, V, No. 10, pp. 1-26

46 Use of Liquid Chlorin for Sterilizing Water. J. E. Kienle, Wilmington.

Georgia Medical Association Journal, Augusta

November, IV, No. 7, pp. 197-226

47 *Cerebrospinal Syphilis. W. R. Houston, Augusta.
48 Artificial Pneumothorax. E. C. Thrash, Atlanta.
49 *Headaches. W. H. Malone, Marietta.
50 Perineal Hernia. W. F. Shallenberger, Atlanta.

47 and 49. Abstracted in THE JOURNAL, May 9, 1914, p. 1499.

Journal of Outdoor Life, New York

November, XI, No. 2, pp. 321-351

51 *Ten Years' Work at Gaylord Farm Sanatorium. I. Fisher, New Haven, Conn.
52 When to Take the Cure, and Why. E. Cummings, Hinton, W. Va.
53 Effective Work with Small Resources. H. W. Slocum, Minneapolis.
54 Use of Exercise in Treatment of Tuberculosis. C. W. Mills, Loomis, N. Y.

51. **Ten Years Work at Gaylord Sanatorium.**—With the Gaylord Farm Sanatorium, the state home for tuberculosis, with the New Haven Hospital equipment, the New Haven Dispensary for tuberculosis, the house to house work for the Visiting Nurses' Association, the New Haven Employees' Relief Association, with the Day and Night Camps, the out-of-door and open-window schools, the Improved Housing Association, the Waterbury Antituberculosis League, the Meriden Tuberculosis Relief Association, and the State Board of Health, Fisher says, New Haven County has one of the best equipments for fighting tuberculosis in the United States or in the world. Outside of the county the state tuberculosis commission has its other homes and there are several local antituberculosis organizations, including a summer camp for girls at Litchfield, maintained by the Reverend Mr. Chapman. Active work is being done in Hartford, South Manchester, New Britain, Norwalk, Stamford and Bridgeport. Outside of the state of Connecticut the influence of Gaylord Farm has been not inconsiderable. It has been the inspiration for the formation of other antituberculosis associations and sanatoria, hospitals and dispensaries. It has supplied what many believed to be the best type or model for combining the activity of the state and of the general public in the hygiene of tuberculosis. In states in which sanatoria have been instituted by the government without private cooperation, they have been more or less blighted by politics. In cases in which, on the other hand, antituberculosis work has been undertaken without state aid, it has been crippled for lack of funds. A happy combination of state aid and private initiative seems to be the true solution. Aside from supplying a model for organization and administration, the association has lent specific aid to the antituberculosis work outside of the state.

The National Association has helped to establish over 1,000 state and local antituberculosis societies; helped to secure over 550 hospitals and sanatoriums, with more than 35,000 beds for patients; 400 dispensaries, with over 1,000 physicians in attendance; over 200 open air schools and fresh air classes for anemic and tuberculous children; and more than 3,000 nurses engaged in tuberculosis work. It has helped to get laws passed in forty-five states and local ordinances in over 200 cities, dealing with the treatment and the prevention of tuberculosis. Active field campaigns of education in forty states and territories have been carried on and no less than 100,000,000 pamphlets on tuberculosis have been distributed in the last ten years. The National Association has expended in ten years only $200,000 but has stimulated national, state and local agencies to expend about $100,000,000. It is reported that out of $20,000,000, which were expended last year in the fight against tuberculosis, over two-thirds, or nearly $14,000,000, were expended out of public funds. These include expenditures by federal, state, county or municipal governments. The best way of registering statistically the general effect of the antituberculosis movement is in the reduction of the death-rate. It is found, according to the census reports, that tuberculosis in all its forms in the states in which registration has been kept since 1900, has declined from 181 per 100,000 in 1901 to 150 per 100,000 in 1911. This is a decline of 17 per cent. in ten years, the decline being 12 per cent. for males and 23 per cent. for females.

Journal-Lancet, Minneapolis

November 15, XXXIV, No. 22, pp. 583-614

55 Relations Between Newspaper Press and Medicine. B. Foster, St. Paul.
56 Some of the Problems of State Sanatorium. J. G. Lamont, Dunseith, N. Dak.
57 Diseases of Urinary Tract Produced by Diseases of Genital Tract in Female. A. C. Stokes, Omaha.

Lancet-Clinic, Cincinnati

November 14, CXII, No. 20, pp. 523-548

58 New Cincinnati General Hospital. E. G. Zinke, Cincinnati.
59 Medical Investigations. W. E. Magruder, Baltimore.
60 Sources of Wassermann Error and Their Control. A. Faller, Cincinnati.
61 Shall Early Amputation Be Done in Compound and Comminuted Fractures? J. E. Pirrung, Cincinnati.

Medical Record, New York

November 21, LXXXVI, No. 21, pp. 867-908

62 Public and Profession: A Criticism. D. Hecht, Chicago.
63 Plea for Research into Possibility of Cure of Dementia Præcox by Use of Serum Containing Defensive Ferment. B. Holmes, Chicago.
64 *Association of Follicular Tonsillitis with Acute Gastric Fever. L. Fischer, New York.
65 Sexual Significance of Recent Fashions. E. H. Williams, Los Angeles.
66 Clinical Significance of the Human Countenance. W. P. Cunningham, New York.
67 Vincent's Angina. H. H. Amsden, Concord, N. H.
68 Case of Acute Thyroiditis. I. W. Voorhees, New York.
69 Relation of Gynecology and Urology to General Surgery. H. Lilienthal, New York.

64. **Association of Follicular Tonsillitis with Acute Gastric Fever.**—The frequent occurrence of gastric fever, Fischer says, demands a careful inspection of the tonsils and when such tonsils show evidence of hypertrophy they should be treated as diseased tissue which may be a focus for future malignant infections. Loss of appetite, or rather a refusal to eat, will be noted; all symptoms pointing to a gastric derangement will be present, and still the predominating

symptom will be the patches or follicles on the tonsils, causing pain on swallowing. Fischer emphasizes that too much importance cannot be placed on the necessity for throat inspection in every child that refuses to eat.

The treatment he advocates is as follows: An alkaline laxative such as a 3 to 5 grain dose of compound jalap powder should be given and repeated every three hours until a thorough evacuation have been produced. During this eliminative treatment water should be given liberally but no food. Locally, for the throat tincture of iodin diluted with an equal quantity of water should be applied once with the aid of a cotton swab. After the bowels have been thoroughly cleaned, chicken soup or milk from which the cream has been skimmed or weak tea may be permitted. For the after-treatment 1 or 2 drops, depending on the age, of tincture of nux vomica may be given before meals.

Missouri State Medical Association Journal

November, XI, No. 5, pp. 207-248

70 Status Lymphaticus and Status Hypoplasticus and Their Relationship to Glands of Internal Secretion. W. W. Duke, Kansas City.
71 Treatment in Heart Disease. C. H. Neilson, St. Louis.
72 Roentgen Method in Ileocecal Diagnosis. E. H. Skinner, Kansas City.
73 Auto-Intoxication and Its Relation to Intestinal Indigestion. D. F. Manning, Marshall.
74 Missouri Prehistoric Mortars and Pestles. H. M. Whelpley, St. Louis.
75 Fracture of Patella and Its Treatment. T. C. Boulware, Butler.
76 Dacryocystitis, Caused by Membranous Closure of Nasal Duct. M. Wiener and W. E. Sauer, St. Louis.

New York Medical Journal

November 21, C, No. 21, pp. 997-1048

77 Insanity and Divorce. A. Gordon, Philadelphia.
78 Teratoma Testis with Tubercle Bacilli in Urine. V. C. Pedersen, New York.
79 Implantation of Pituitary Gland. E. Waitzfelder, New York.
80 Solution of Problem of Criminal Abortion. P. S. Madigan, Washington, D. C.
81 *Intraspinous Medication. O. Berghausen, Cincinnati.
82 Hyperchlorhydria. A. L. Holland, New York.
83 *New Method of Hastening Repair after Fracture. H. J. Kauffer, New York.
84 Need of More State Hospitals for Insane. J. A. Jackson, Philadelphia.
85 Rôle of Cecum in Chronic Disorders in Right Lower Abdomen. J. M. Wainwright, Scranton, Pa.
86 Tuberculosis of Kidney. J. A. Gardner, Buffalo.
87 Early Pulmonary Tuberculosis. C. H. Cocke, Asheville, N. C.
88 New Poison Containing Bottle. R. J. Lackner, New York.

81. **Intraspinous Medication.**—Following the intraspinous introduction of 5 c.c. normal saline solution rather rapidly, a gradual increase in the pressure was noted by Berghausen there being no sudden variations; as when tricresol is added in 0.5 per cent. concentration, to the normal saline solution, there was a sudden rise then a fall, and a secondary rise. The same result was obtained when the tricresol was added to distilled water in the same concentration. The needle was introduced into the spine, a few drops of fluid were allowed to flow, the needle was withdrawn, then introduced into another interspace in the lower lumbar spine, and so on. There were distinct variations in pressure, now a rise and then a fall. Apparently, then, the simple procedure of spinal puncture is likely to be followed by variations in the peripheral blood-pressure.

Berghausen is convinced from a study of this and other experiments that sudden variations in peripheral blood-pressure are likely to follow the simple procedure of spinal puncture and the subsequent injection of simple solutions; that the addition of tricresol in 0.5 per cent. concentration has no distinct deleterious effect beyond the slight toxic effect which all phenol derivatives possess in this concentration and which makes them useful as antiseptics; that serious damage can be done to the cord through the insertion of the needle too high into the spine, the immediate damage being probably due to hemorrhage, chiefly subdural.

In accordance with these findings, Berghausen controls all intraspinous injections by taking the peripheral blood-pressure after the method of Sophian. Particularly in epidemic meningitis, sudden variations in the peripheral blood-pressure are noticeable. In fact, it not infrequently becomes necessary again to withdraw the serum (using the gravity method only), owing to the fact that the blood-pressure had fallen distinctly, at times 30 to 50 mm. below the original pressure. In Berghausen's experience, sudden respiratory changes follow only when the blood-pressure has suffered a marked change, usually a drop. It is a safe rule never to withdraw the needle until the blood-pressure at the close of the injection has about reached that which was registered at the outset. The gravity method is of distinct value in attaining this end, since it affords a ready means of withdrawing the serum and fluid.

83. **New Method of Hastening Repair After Fracture.**—Kauffer makes use of homogeneously granulated bone incorporated with petrolatum, injected into and between the fractured ends of bone, to encourage repair in fractures, especially in cases of delayed union. A piece of bone (a fresh specimen obtained from the morgue) is dried and ground up to a powder, mixed with petrolatum to a consistence of bismuth paste, sterilized by placing in a large bottle, which is placed up to the neck in water and boiled for two hours. Keep in a cool place. When required, it should be warmed and well mixed by shaking, taken up into a 4 or 8 c.c. syringe, using a long needle, with a bore about gauge 20.

After the fracture has been extended and approximated, it is located by digital examination and Roentgen ray; the needle is introduced through the skin and fascia to the seat of fracture, the rough edges of which are readily appreciated. The needle is then passed as deeply as possible between the fractured ends. The contents of the syringe are injected as the needle is slowly withdrawn to the surface of the bone, when injecting must stop and the needle be removed. This procedure may be repeated into the fracture at several angles, if necessary, thus infiltrating the entire mass between the fractured ends with petrolatum and bone cells, which act as a focus for osteogenesis. The powdered bone and petrolatum are also recommended wherever bone is required. Kauffer says that the powdered bone invites calcareous deposits and encourages a metaplasia of the adjacent tissue cells.

Northwest Medicine, Seattle, Wash.

November, VI, No. 11, pp. 325-358

89 Digitalis Heart Block. T. H. Coffen, Portland, Ore.
90 Graphic Studies in Cardiac Arhythmia-Ectopic Systole. M. H. Tallman, Boise, Ida.
91 *Case of Trachoma Treated with Bacillus Lactis Bulgaricus. C. R. Hudgel, Boise, Ida.

91. **Trachoma Treated with Bacillus Lactis Bulgaricus.**—Hudgel's method of treatment was as follows: One per cent. atropin once daily; hot fomentations three times daily; twice during the course of treatment he turned the lids back and scarified them thoroughly with a small bistoury. They bled freely. Twice daily he reduced to powder a tablet of the Bulgarian bacillus and dusted it on each everted lid. No astringents or other remedies were used. The improvement was marked from the start. The copious lacrimation was checked at once and the patient said his eyes felt much cooler and easier. The ulcers healed and the pannus gradually disappeared. The improvement of vision kept pace with the amelioration of the various phases of the disease. When discharged two weeks after commencing treatment vision with correction was 15/20. The eyes were clear and felt free from irritation.

Ohio State Medical Journal, Columbus

November, X, No. 11, pp. 647-726

92 Salvarsan and Neosalvarsan Treatment of Syphilis. M. L. Heidingsfeld, Cincinnati.
93 Practical Consideration of Heredity Presented in Certain Anomalies of Eye. I. G. Clark, Columbus.
94 Outline of Organization of Department of Health Along Welfare Lines. A. L. Light, Dayton.
95 Internal Closure of Femoral Opening for Hernia. C. E. Briggs, Cleveland.
96 Present-Day Methods for Finding Tubercle Bacillus. T. Zbinden, Toledo.
97 Problems of Intern Service. V. A. Dodd, Columbus.
98 Benzol Treatment of Leukemia. E. W. Mitchell, Cincinnati.
99 Foot as Affected by Modern Shoe. M. Millikin, Hamilton.
100 Review of Post Urethroscopy. S. Englander, Cleveland.

Oklahoma State Medical Association Journal, Muskogee

November, VII, No. 6, pp. 171-202

101 Congenital Defects of Eyes that Manifest Themselves in Children. L. H. Buxton, Norman.
102 Suppurative Otitis Media. L. A. Newton, Guthrie.
103 Id. J. B. Ferguson, Sallisaw.
104 Plea for Early Intubation by General Practitioner. A. P. Gearhart, Blackwell.
105 Pharyngeal Diagnosis from General Practitioner's Standpoint. W. E. Dixon, Oklahoma City.

Ophthalmic Record, Chicago

November, XXIII, No. 11, pp. 541-594

106 Operations on Extra-Ocular Muscles. E. Jackson, Denver.
107 Heterophorias and Their Treatment. G. C. Savage, Nashville, Tenn.
108 Unanswered Questions Concerning Heterophoria and Heterotropia. L. Howe, Buffalo.

Public Health Journal, Toronto

November, V, No. 11, pp. 659-704

109 Municipal Loans and Municipal Works. R. O. Wynne-Roberts, Regina, Sask.
110 Pasteurization of Milk. L. C. Bulmer, Regina, Sask.

Southern Medical Journal, Mobile

November, VII, No. 11, pp. 855-914

111 "Indigestion" Forerunner of Diseases of Cardiovascular and Renal Systems. F. M. Hodges, Richmond, Va.
112 Uncinariasis and Pregnancy—Dangers. J. S. Turberville, Century, Fla.
113 Condition of Negro in South. F. G. DuBose, Selma.
114 Simple and Inexpensive Filter. P. C. Fauntleroy, Fort Monroe, Va.
115 Sarcoma of Chest-Wall. Report of Case. C. Collier, Memphis, Tenn.
116 Intestinal Stasis. Ceco-Sigmoidostomy for Hirschsprung's Disease. S. H. McLean, Jackson, Miss.
117 Transfusion—Direct and Indirect. Simplified Methods. B. M. Bernheim and A. P. Jones, Baltimore.
118 Abduction and Fixation of Elbow in Treatment of Fractures of Surgical Neck of Humerus. I. Cohn, New Orleans.
119 Local Treatment of Gonorrheic Infections. M. C. Sycle, Richmond, Va.
120 Gumma of Anterior Urethra. J. C. Vinson, Tampa, Fla.

West Virginia Medical Journal, Wheeling

November, IX, No. 5, pp. 145-180

121 Spina Bifida. Report of Cases. S. S. Gale, Roanoke, Va.
122 Prevention of Insanity. C. A. Barlow, Spencer.
123 Prostatectomy. W. D. Hamilton, Columbus.
124 Hereditary Mental Deficiency. J. W. Williams, Richmond, Va.
125 Some More Truth About Alcohol. I. Hardy, Morgantown.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Roentgen Ray, London

November, XIX, No. 6, pp. 199-234

1 Roentgen Rays in War. F. Lemon.
2 Localizing Simply and Immediately. W. Hampson.
3 Diathermy—Its Production and Use in Medicine and Surgery. E. P. Cumberbatch.
4 Radiometry. T. Christen.
5 Treatment of Recurrences and Metastases from Carcinoma of Breast. G. E. Pfahler.

British Journal of Surgery, London

October, II, No. 6, pp. 189-350

6 Exploration of Knee-Joint. E. M. Corner.
7 Rhizotomy for Spastic Paralysis. G. E. Waugh and Others.
8 Id. For Relief of Gastric Crises in Tabes Dorsalis. G. Barling and Others.
9 Id. For Relief of Pain B. Kilvington and Others.
10 *Anoci-Association. C. A. Pannett.
11 Case of Suppurative Colinephritis. F. J. F. Barrington.
12 Contemporary Italian Surgery. R. Bastianelli.
13 Chronic Subdural Hemorrhage of Traumatic Origin and Its Relation to Pachymeningitis Hemorrhagica Interna. W. Trotter.
14 Radical Operation for Cancer of Rectum. W. E. Miles.
15 *Etiology of Appendicitis, Gastric Ulcer and Allied Conditions. R. G. P. Lansdown and G. S. Williamson.

10. **Anoci-Association.**—Pannett experimented on cats and rabbits and found that afferent impulses set up by incision of the abdominal wall in the linea alba can be prevented from reaching the nerve centers by local infiltration with novocain, as recommended by Crile. When the incision is not in the middle line, these impulses can be blocked only by anesthetizing the nerve trunks as well as employing local infiltration to render the nerve-endings insensitive. This procedure may necessitate the waiting of some minutes between the injection of the anesthetic and the severance of each layer. If perineural injections are employed, 1 per cent. novocain must be used. Afferent impulses resulting from manipulation of the viscera have in general a more pronounced effect on the vasomotor center than those resulting from the opening of the abdomen and the retraction of the edges of the wound. To bring about a condition of anociassociation of the nerve centers, it is as essential to cut off impulses ascending from the viscera as it is to block those coming from the abdominal wall. Afferent impulses set up by manipulation of the stomach, intestine and the attachments of these viscera, may be blocked by local anesthetization of these attachments. The tone of the abdominal muscles is increased by the manipulation of the viscera or by dragging on the parietal peritoneum. This reflex rigidity can be eliminated by locally anesthetizing the abdominal wall and by blocking impulses from the viscera.

15. **Etiology of Appendicitis.**—Appendicitis, gastric and duodenal ulcer, and probably certain forms of mucous colitis, Lansdown and Williamson hold originate from the action of some noxious agent on these structures. These diverse conditions are essentially associated with one another as the result of an underlying common cause; and sepsis and chronic ulceration are either secondary features or sequela of such disorder. There are in the substances of the mucous membrane of the intestinal tract certain small round-celled aggregates more or less distinct from the lymphoid follicles. These structures are associated with a particularly simple epithelium. They occur in areas of concentration in the stomach, duodenum, appendix and upper rectum. The distribution within the stomach and duodenum occupies what might be called the ulcer area. They appear to suffer some general enlargement or destruction in appendicitis, gastric and duodenal ulcer, and certain form of dyspepsia. Sepsis as a secondary process can be engrafted on such changes in the appendix, and it is to be considered as a sequela. Similarly, chronic gastric and duodenal ulcer is the outcome of some secondary irritation acting on these diseased foci. There is a pathologic link between appendicitis, certain dyspepsias and chronic gastric ulcer.

British Medical Journal, London

October 31, II, No. 2809, pp. 741-776

16 *Treatment of Arthritic Deformities. R. Jones.
17 *Mechanical Considerations of Human Foot. H. S. Rowell.
18 *Soldiers' Feet and Footgear. C. Webb-Johnson.
19 Insects and War; Mites. A. E. Shipley.
20 Simple and Rapid Method of Localizing Bullets. F. Hernaman-Johnson.
21 Medical Care of Lines of Communication at Home. C. B. Heald.
22 Pinewood Sawdust as Surgical Dressing. R. Parker.

November 7, No. 2810, pp. 777-820

23 *Significance of Blood-Pressure Readings in Man. J. A. MacWilliam and G. S. Melvin.
24 Barber-Surgeons Company. T. G. Lyon.
25 Insects and War: Mites. A. E. Shipley.
26 Reform of Vital Statistics of Nation. V. Horsley.
27 Legal Investigation of Causes of Death in Scotland. W. G. A. Robertson.
28 Necessity for Reforming Coroner's Inquest. J. C. McWalter.

16. **Treatment of Arthritic Deformities.**—Jones emphasizes that deformities are preventable if a surgeon be acquainted with the natural course of disease. In view of ankylosis the joint should be allowed to become fixed in the position of greatest usefulness as regards function. In children most deformities can be corrected by manipulation and osteotomies and exsection of bone are very rarely required. The reduction of deformity in a septic or tuberculous joint during the existence of disease can be safely undertaken if it be immediately followed by fixation. In sound fibrous ankylosis of the hip an osteotomy should be preferred for the correction of adduction, as some recurrence of deformity would follow reduction by manipulation.

The site of osteotomy will depend on the nature of the ankylosis and on the extent of the deformity. Transtrochanteric osteotomy gives the most accurate mechanical result. It should be practiced in all cases of bony fixation in which the femoral neck is not absorbed and in which there is no marked pathologic dislocation. In cases in which the destruction of the head and neck have occurred and the femur lies close on the pelvis, a wedge should be removed from the neighborhood of the trochanter. In cases of fibrous ankylosis in the process of becoming sound, a subtrochanteric osteotomy is indicated to prevent strain on fibrous bands. All osteotomies require subcutaneous division of the adductors. Subtrochanteric osteotomy is contra-indicated in cases in which flexion is extreme.

Arthroplasty of the hip-joint in any of its many forms, Jones says, may be looked on as a valuable and successful procedure. The character of the intervening substance whether bone, free or pedunculated fascial flap, fat, or muscle, is not so important as a good technic and a sound judgment. It should not be performed on children nor in the presence of active disease. It should be reserved for adult life, and has proved more successful after recovered septic than after tuberculous disease, and in case of septic disease it should be postponed for one or more years until the periarticular structures have become more normal.

The results of arthroplasty of the knee are not too encouraging. In bony ankylosis of the femur and tibia the results are distinctly discouraging. In those instances in which the ankylosis is fibrous, with perhaps bony fixation of the patella, results are often good. In such conditions, however, Jones states, mobility may often be secured without operation. In painful and progressive deformities, such as in osteo-arthritis of the hip, many procedures may be expected to give relief by preventing the friction of tender joint surfaces.

17. **Mechanical Considerations of Human Foot.**—Rowell's main conclusion is that for the ordinary inactive life of the drawing-room, office and shop, high-heeled boots and shoes may be advantageous in giving to the feet a pleasant, braced-up feeling, quite different from that enjoyed or suffered by those who slither about in heelless slippers.

18. **Soldiers' Feet and Footgear.**—When a man's feet are sore and inflamed, but not blistered, Webb-Johnson says, it is advisable for him regularly to do one of the following: (a) Rub the feet night and morning with spirit, to which may be added 1 to 2 per cent. of salicylic acid. (b) Paint the tender parts once or twice a day with either a saturated solution of picric acid or a solution of chromic acid (2 to 3 grains to the ounce). (c) After drying the feet, sprinkle with a powder composed of talc and salicylic acid (salicylic acid 2 grains, talc 1 ounce). (d) Soak the feet in a bucket of cold water to which potassium permanganate, salt, alum, tannic acid, or saltpeter has been added.

Men who complain of excessive sweating of the feet should soak them daily in a solution of formalin and water (1 to 800), dry them, and dust them with zinc oxid or some other powder. Tender feet may be well greased with zinc or boracic ointment, or the soles of the feet may be soaped. When a man's feet are normally fatigued at the end of a long march, after he has washed and dried them, he will find great relief if he lies down and raises the feet by resting them against some firm object.

If, in spite of all these precautions, a blister forms, the fluid should be evacuated aseptically and the surplus skin, liable to cause pressure cleared away. An antiseptic ointment should then be applied and the blister covered with stockingette plaster. As, after the heel, the most common situation for a blister is the plantar aspects of the fourth and fifth toes, it is in this case advisable to use animal wool round and under the toes to counteract the flexion which causes the pressure on these parts.

23. **Significance of Blood-Pressure Readings in Man.**—In doing blood-pressure estimations MacWilliams and Melvin find it desirable to determine the diastolic index while the armlet pressure is being raised; in some (rare) cases in which arm compression leads to a marked rise of blood-pressure, the diastolic reading taken with a rising armlet pressure may differ from that obtained during the lowering of the armlet pressure (after determining the systolic index) by as much as 20 mm. This is especially the case when simultaneous estimations are made in the two arms. But a decided effect is sometimes observed when only one arm is tested. Comparison of the diastolic values with rising and falling armlet pressures may thus give important indications of the liability of the arterial pressure to vary in an abnormal way, when a large artery is closed, as in the process of systolic estimation.

As regards the impressions derived from digital examination of the pulse, they have found the impression gained as to (a) the tension in the vessel within the beats (diastolic pressure), and (b) the extent of the change at systole (pulse pressure) to be specially fallacious in some cases—apparently more deceptive than the impression as to the compressibility of the pulse (systolic pressure). An enormous pulse pressure (for example, 120 mm. in a case of aortic regurgitation) may be present, as shown by measurement of the systolic and diastolic pressures, when the finger fails to give any adequate conception of such a pressure wave along the artery. And the measured diastolic pressure may be very high when the impression given by digital examination is that it is rather low.

Bristol Medico-Chirurgical Journal, London

September, XXXII, No. 125, pp. 193-256

29 Local Analgesia in Surgical Operations. A. L. Flemming.
30 *Case of Richter's Strangulated Hernia. C. A. Moore.
31 Roentgenographic Centroscope and Roentgenographic Episcope. W. Cotton.

30. **Case of Richter's Strangulated Hernia.**—In Moore's case the operation was followed by no marked shock, but paralysis of the bowel caused a highly critical condition for the next few days. Enemata were useless, but a course of intramuscular injections of pituitary extract given simultaneously with a turpentine enema produced the desired result.

Practitioner, London

November, XCIII, No. 5, pp. 589-732

32 Diagnosis of Nasal Accessory Sinus Disease. W. S. Syme.
33 Diffuse Sclerodermia: Report of Two Cases. A. Howell.
34 Psychic Factor in Insomnia. H. C. Miller.
35 *Pruritus Ani. L. E. C. Norbury.
36 Anesthesia. J. Blumfeld.
37 Diseases of Lungs. A. J. Jex-Blake.
38 Anemia with Enlargement of Spleen. J. S. McKendrick.
39 Etiology and Prevention of Rickets. D. Curle.
40 Choice of Winter Health Resorts. R. F. Fox.
41 *Rhinosporidium Kinealyi. T. S. Tirumurti.
42 Diaphragmatic Hernia of Stomach and Part of Small Intestine. W. E. Graves.

35. **Pruritus Ani.**—In every case of pruritus ani, in which no satisfactory causative factor can be found by external examination or examination of the anal canal with the sphincteroscope, Norbury urges that a thorough investigation of the rectum and pelvic colon by means of the sigmoidoscope should be carried out. In this way hidden lesions may be discovered, and treatment established on a sound basis. For instance, pruritus may be the result of irritating discharges from simple or malignant growths in the bowel, from certain forms of colitis or proctitis; granular proctitis or the hypertrophic catarrhal variety. Norbury has had several cases of pruritus ani associated with a large granular patch of mucous membrane, and situated in the lower part of the rectum proper; treatment by rectal injections with sulphate of zinc and local applications of silver nitrate has given considerable relief.

41. **Rhinosporidium Kinealyi.**—Tirumurti shows by a recital of cases that the name Rhinosporidium is a misnomer, because the parasite is found in other situations than the nose, though the nasal mucous membrane is its favorite site. The occurrence of the sporozoon in the conjunctival and nasal mucous membrane is explained by direct inoculation through infected clothing, handkerchiefs, or the hands. The spores are discharged in the nasal secretion, which is rather

profuse in patients who suffer from this parasitic polypus in the nose, and who are subject to chronic nasal catarrh and profuse bleedings from the nose.

The growth of the parasite being usually one of long duration, the source of the infection is forgotten and a history of close contact is not easily elicited. The preponderance of the parasitic cysts in large numbers, mainly in the epithelial and subepithelial tissues, is also suggestive of this mode of conveyance of the disease by infected nasal secretion. The occurrence of the parasite in the penis in a man who was otherwise healthy and showed perfectly normal appearances of the conjunctiva and nasal mucous membrane, is very suggestive of direct inoculation through sexual congress.

Tirumurti suggests that rhinosporidial polypi do occur in the mucous membrane of the mouth, anus and vagina, but are overlooked, microscopic examination not being conducted in every case. The growths have a great tendency to recur, though after their removal the bases are cauterized. Thorough cauterization may prevent a recurrence. The clinical features of the growths are characteristic, though the characters are modified according to the site of their occurrence. The recurrence and innumerable number of cysts of the parasite, in different stages of development in a small fragment of the tissue affected, are in favor of the sporozoon undergoing its complete cycle of development in the human body without the intervention of an intermediary host.

Sei-I-Kwai Medical Journal, Tokyo

October, XXXIII, No. 10, pp. 59-64

43 *Excretion of Arsenic in Urine after Subcutaneous or Intravenous Injection of Salvarsan. K. Irokawa.

43. **Excretion of Arsenic in Urine After Injection of Salvarsan.**—Irokawa injected salvarsan either subcutaneously or intravenously in eight cases of syphilis, two cases of tabes dorsalis and one case of epilepsy and examined the daily excretion of arsenic in the urine for from three to thirty-nine days. He found that from 40 to 90 per cent. of the arsenic injected is excreted in the urine. When salvarsan is injected subcutaneously, it remains at the site of the injection unabsorbed and one can detect the arsenic in the urine, even when it does not cause any inflammation, after three weeks. The excretion of arsenic after intravenous injection is quite slow; and one can prove the presence of arsenic in the urine even after three weeks. In a relatively large number of the cases 10 per cent. of the arsenic is excreted during the first day, but the greater part is excreted in the course of the first week.

Bulletin de l'Académie de Mêdecine, Paris

October 27, LXXVIII, No. 33, pp. 179-230

44 Advantages of Double Gloves and Socks in Cold Weather. (Contre le froid aux mains et aux pieds.) Fernet.
45 *Surgery in the Base Hospitals. (Chirurgie de guerre dans les hôpitaux de l'arrière et du service d'évacuation des blessés.) Témoin.
46 Jagged Wounds from Rebounding Bullets. (Des blessures par balles de ricochet.) Rochard.

45. **Surgery in the Base Hospitals.**—Témoin declares that his experience with 800 wounded has confirmed anew the necessity for refraining from operative mutilations. . . . "One can never reiterate enough *combien il faut être sobre de mutilations chirurgicales.*" "Notwithstanding the vast destructive lesion, notwithstanding the distressing appearance of the shattered tissues, notwithstanding the way in which the bones are fractured at several points and project from the wound, even notwithstanding the appeals of the wounded who plead for amputation to put an end to their suffering, conservative surgery, thanks to the means now at our disposal, yields extremely satisfactory results, so satisfactory that we should consistently refuse to amputate when the wounded are first brought in. Almost all fractures, no matter what the complications, heal perfectly. All that is necessary is to disinfect the wound and immobilize the limb as early as possible." Prompt and definite immobilization was followed by rapid and complete healing in his thirty-seven compound fractures of the humerus, thirty-five of the leg and twenty-seven of the thigh. Only one man required amputation and he had developed tetanus. A wide gap is left in the plaster apparatus to permit dressing the wound. He warns against attempting to explore the wound with fingers or instruments; a simple flat dressing, not attempting to bring the lips of the wound together, is the entire surgical task for the first few days. If wounds of the skull do not prove immediately fatal, they seem to heal with less disturbance than with trauma of the skull under other conditions. In the latter case they are generally the result of a fall on the head and the whole brain suffers more from the concussion.

Certain complications of modern artillery wounds are opening up a new chapter of pathology and surgical practice. The infectious complications develop so rapidly that any intervention is futile. Another complication is the serious secondary hemorrhage which comes on the fourth to the tenth day, when the wound seems to be healing favorably. Then the wounded region, limb, axilla or neck begins to pain and swell, and the temperature runs up. The aspect of the region suggests an abscess but instead of pus when it is incised, a large mass of ill-smelling clots is evacuated with putrefied clots in the depths. If not incised, gangrene is almost certain to develop. If nothing is done but clear out the clots, the immediate relief is great, but during the day or night fulminating hemorrhage comes on, and many have died from this secondary hemorrhage. The only way to avoid it is to realize that when the region is thus uniformly swollen, with agonizing pain and total inability to use the limb—which is never observed with ordinary abscess or phlegmon—some vessel is bleeding into the tissues, and an emergency operation is called for to ligate this vessel above and below the lesion. He lost the first patient from gangrene but the other seventeen were saved by ligating the carotid or femoral arteries, the axillary and brachial or the latter alone or the popliteal or anterior tibial. The wounded should be carefully sifted so that those whose wounds require institutional care should not be taken where such is not available. The sifting out of the wounded is thus a very important task. It can be done on the trains during the transportation, and the case-card should be of a different color for those requiring special skill or equipment.

Archiv für klinische Chirurgie, Berlin

October, CV, No. 4, pp. 769-1051. Last indexed Oct. 24, p. 1509

47 *Surgical Stomach Disease. (Zur Chirurgie des Magens auf Grund von 1,100 in 7 Jahren behandelten Fällen.) H. Küttner.
48 Isolated Chronic Appendicitis from Schistosomum Eggs. S. Goto.
49 Ultimate Results with Sprengel's Plastic Transverse Abdominal Incision. (Dauerresultate der plastischen Bauchquerschnitte.) J. Bakes.
50 Improved Technic for Exarticulation of the Femur. (Erhaltung der Vena femoralis bis zur Auslösung des Schenkelkopfes bei der Exarticulatio femoris nach Rose.) B. Riedel.
51 *Transplantation of Thyroid Gland. (Bedingungen erfolgreicher Schilddrüsentransplantation beim Menschen.) T. Kocher.
52 Source of Regeneration in Case of Transplanted Bone. (Quelle der Regeneration bei Knochenüberpflanzung.) N. N. Petrow.
53 *Exophthalmic Goiter and the Thymus. (Basedow'sche Krankheit und Thymus.) A. Kocher.
54 *Restoration of or Substitutes for the Esophagus. (Ueber Oesophagoplastik im allgemeinen und uber den Ersatz der Speiseröhre durch antethorakale Haut- Dickdarmschlauchbildung im besonderen.) V. von Hacker.
55 Roentgen Findings in Condyle After Injury of Knee. (Weitere Beobachtungen über den Stieda'schen Knochenschatten am Condylus internus femoris.) K. Vogel.
56 Operative Treatment of Bladder Tumors. (Blasentumoren.) O. Hildebrand.

47. **Operations on the Stomach.**—Küttner states that 10 per cent. of all his surgical work at Breslau in the last seven years has been on the stomach. In the total of 1,100 stomach cases two-thirds were malignant and only 20 per cent. of these were operable. The proportion of operable cases was lowest in patients who came from private practice. One woman was in the hospital for a year on account of multiple cysts in the upper third of the femur, first on one side and then on the other. Necropsy revealed that the cysts were metastases from a gastric cancer which had been entirely unsuspected, although the woman had been under super-

vision for all that time. Malignant disease of the stomach apart from the pylorus causes achylia and mechanical conditions like those artificially induced by a gastro-enterostomy. This explains why cancer of this kind can exist so long without attracting attention. In 15 per cent. of his cancer cases there had been preceding stomach trouble, but whether gastritis, ulcer or achylia is not known. In one case both a cancer and an ulcer were found in the stomach, and in another five or more separate cancers. The operable cases generally had a longer history of disturbances than the inoperable ones. Roentgenoscopy was usually disappointing except when it disclosed inoperable conditions. The Gluczinski method of differentiation proved reliable. The later the pain develops after eating, the nearer the pylorus the lesion is found.

He resects only when cancer cannot be excluded with absolute certainty; that is to say, he does resection in every case of tumor-forming callous ulcer, as he is convinced that this is in reality of cancerous nature. The fear of transformation of other forms of gastric ulcer into cancer is not borne out by his experience; there were only two in which cancer developed later, in his 120 cases, and the ulcer was of the callous type. After-hemorrhage from an ulcer treated by gastro-enterostomy was responsible for the death of one patient, and also for that of another treated by resection. Perforation did not occur after gastro-enterostomy in any instance, and the ultimate outcome was a complete cure of all disturbances in 65 per cent. and essential improvement in 20 per cent. The ultimate outcome was also surprisingly good after a gastro-enterostomy done for sagging of the stomach, thus kinking the pylorus. The results when the pylorus was excluded were no better than with simple gastro-enterostomy alone.

51. **Transplantation of the Thyroid.**—This report of Kocher's experimental and clinical experience fills nearly one hundred pages. He has only good results to report from the twenty-one patients treated by this means alone. The lessons learned from this material in regard to the conditions for success are presented in detail, as well as for the technic.

53. **Exophthalmic Goiter and the Thymus.**—Kocher states that no instance of Basedow's disease is yet known in which at necropsy or operation the thyroid was found free from hyperplasia, but the thymus is often apparently normal. In nearly 50 per cent. of all cases of Basedow's disease a tendency to tardy hyperplasia or tardy involution of the thymus is evident. Hyperplasia of the thymus is more frequent in younger Basedow patients. No special histologic findings were discovered in the thymus with Basedow's disease at necropsy of fourteen cases; six had died under operative treatment and eight from the Basedow alone. When there is hyperplasia of the thymus, the patient might be prepared for an operation on the thyroid by a course of thymus extract and Roentgen exposures of the thymus, just before the operation on the thyroid.

54. **Antethoracal Restoration of the Esophagus.**—Von Hacker gives a profusely illustrated description of the technic with which he provided a girl of 12 with a functionally capable esophagus after the natural passage had been impassibly corroded by swallowing a tablespoonful of lye. It had been given her by her mother, who took a similar dose and died of the injury. The operation was done at several sittings, the entire procedure requiring about six months. The plan was to take a segment of the transverse colon and implant it in the lesser curvature of the stomach and bring the other end up under the skin nearly to the clavicle. The esophagus was severed above the stenosis and the proximal stump brought out through a transverse incision in the neck and worked down under the skin and sutured to the upper end of the colon segment. The illustrations show a healthy girl with scarcely any trace of her injury except a linear scar from the umbilicus to the neck.

Berliner klinische Wochenschrift, Berlin

October 19, LI, No. 42, pp. 1717-1736

57 *Treatment of Tetanus, Especially with Magnesium Sulphate. W. Weintraud and E. Unger.
58 Principles of Dietetics. (Die Kost der Arbeiter und die Grundsätze der Ernährung.) F. Hirschfeld.
59 Treatment of Lupus. A. Alexander.

October 26, No. 43, pp. 1737-1756

60 *Treatment of Cholera. L. Lichtwitz.
61 Application to Gait of Man and Animals of Laws of Velocity. (Anwendbarkeit des Gesetzes der korrespondierenden Geschwindigkeiten auf die Gangbewegung von Menschen und Tieren.) R. du Bois-Reymond.
62 Exaggeration of Symptoms from Spinal Tumor After Lumbar Puncture. (Ueber im Anschluss an die Lumbalpunktion eintretende Zunahme der Kompressionserscheinungen bei extramedullären Rückensmarkstumoren.) L. Newmark (San Francisco).
63 Neosalvarsan for Children. (Anwendung der epifascialen (bzw. intramuskulären.) Neosalvarsaninjektionen nach Wechselmann im Kindesalter.) H. Kern.
64 Congenital Dropsy. (Angeborene Wassersucht.) H. Wienskowitz. Commenced in No. 42.
65 Aviators' Arrows. (Der Pfeil als Fliegerwaffe.) H. Coenen.

57. **Tetanus.**—Weintraud says that the number of cases of tetanus among the wounded makes it imperative to recognize the first symptoms of it, which only too often the patient—"in his touching patience and ignorance of the dangers to which he is exposed"—regards as too trivial to mention. They may include dizziness, heavy sweats, slight difficulty in urination, a feeling of tightness in the muscles of the jaws or back of the neck, or brief spasms of the muscles of the chest or of the diaphragm. The latter are liable to be mistaken for pleurisy pains. The technic and dosage for serotherapy should be mastered beforehand and no one should be misled into assuming that antitetanus serum can be given like diphtheria antitoxin. Its efficacy lies in prophylaxis and the immunity conferred is transient.

When tetanus is once installed, Weintraud continues, little can be hoped from serum treatment, but we have an important symptomatic aid in Meltzer and Auer's magnesium sulphate treatment. He has been so much impressed with the value of this measure that he urges all medical societies to devote a meeting to it, exhibiting the classic guinea-pig experiment, injecting subcutaneously 7 c.c. per kilogram of weight of a 25 per cent. solution. All the voluntary and involuntary movements of the body are entirely arrested. Unless artificial respiration is applied the guinea-pig dies without any signs of pain or suffocation. The animal lies relaxed without a single manifestation of life except for the heart-beat and blood-pressure which with small doses persist almost normal. Artificial respiration restores normal conditions and the animal seems none the worse for his experience. The animal can be restored also by injecting 5 or 10 c.c. of a 5 per cent. solution of calcium chlorid slowly into a vein in the ear. In twenty seconds the animal begins to breathe deeper, rouses in a minute, and in a short time cannot be distinguished from its normal mates.

This exhibition convinces all of the extreme value of magnesium sulphate in tetanus, but it warns also of its dangers. Too small a dose does no good, and too large arrests the breathing. The individual susceptibility differs also. In the three cases of recovery at Wiesbaden the patients had all been given magnesium sulphate. After a single injection the rigid muscles relaxed, breathing became deeper and freer, cyanosis and sweating subsided, and the patient sank into refreshing slumber. If he is wakened anew by pains and spasms, these can be relieved again by the sulphate. Individual tentative experience must be the guide to dosage. To date, he says, fifty cases of tetanus have been given this treatment, and the mortality of 35 per cent. is being constantly lowered. Kocher lost only one of his six patients, and this one succumbed to sinus thrombosis. The intraspinal technic is scarcely applicable outside of institutional supervision. No one physician can carry it through alone; in one case in his service eight intraspinal injections were given during the week, thus arresting the paroxysms each time as they returned, until finally the tendency was conquered. The general practitioner must content himself with subcutaneous injection. Brilliant results have been attained with it, but even this requires the most devoted supervision, keeping the patient under this long, deep, lasting anesthesia and yet not letting it be so deep that the relaxation paralyzes vital functions. The danger of total arrest of the respiration confronts one constantly. The aspect, the tint, are no criteria; the breathing must be watched for the slightest tendency to paralysis of the respiratory muscles.

With intraspinal injection the spinal canal can be washed out when the effect is too intense, but with subcutaneous injection no relief is possible in this way, but the drug can be more or less completely neutralized by the antagonistic action of 5 c.c. of a 5 per cent. solution of calcium chlorid, injected intramuscularly, repeated several times at need. Artificial respiration, however, is the main reliance and may suffice alone, especially if preceded by an injection of 1 mg. physostigmin salicylate. If these fail, intratracheal insufflation is within the reach of every one. If there is no oxygen tank available, air can be pumped in with an ordinary bellows. If skilled in intubation technic, tracheotomy can be avoided.

In conclusion, he reiterates that the sulphate does not menace the heart directly, but the heart may need camphor from the exhaustion following the spasms. He does not seem to have had any personal experience with the subcutaneous technic, but cites others to show that the dose should be at least 15 or 20 c.c. of a 20 per cent. solution or 12 or 16 c.c. of a 25 per cent. solution for an adult. Parker injected 28 c.c. of a 25 per cent. solution at a time. Mielke thus cured a girl of nearly 6 with doses of 3 gm. in a 20 per cent. solution three times in twenty-four hours, to a total of twenty-four injections, using up 61 gm. of the drug. Of course, the smallest effectual dose should be used. The relief from the sulphate is so great that the patients pay no heed to the local pain of the injection, but this can be reduced by giving a little morphin.

Unger describes a method of treatment which he has applied in one case with apparent success. Antitetanus serum was injected into the ulnar or radial artery through a ureter catheter, pushed in until the tip reached the arch of the aorta. The serum thus pumped in passed at once to the brain through the carotid arteries and into the spinal cord through the descending aorta. He has often introduced ureter catheters in this way far up into veins and arteries. Heddaeus has recently reported a somewhat similar intra-arterial technic, injecting the antitetanus serum directly into the internal carotid artery. He had applied it in six cases of tetanus with gratifying results.

60. **Cholera.**—Lichtwitz confesses that he has had no experience with cholera, but theoretically is convinced that great benefit might be derived from epinephrin administered intravenously by the drip method, taking two or three hours to inject half a liter of the epinephrin-salt solution, as for peritonitic shock. This replenishes the epinephrin in the circulation as fast as it is eliminated. When this technic is impracticable, the next best is to inject occasionally 100 c.c. of the solution as slowly as possible. Another point which he emphasizes is that when bolus alba or charcoal is used it must not be forgotten that this will absorb and nullify the action of drugs given soon before or with it. It is also liable to absorb and nullify the digestive ferments, and thus impair the appetite.

Medizinische Klinik, Berlin

October 25, X, No. 43, pp. 1607-1632

66 *Serious Injuries of the Eyes in the Field. (Die wichtigsten Augenverletzungen im Krieg und ihre erste Behandlung.) C. von Hess.
67 Vaccination Against Typhoid, Cholera and Dysentery. (Schutzimpfung bei Kriegsseuchen.) H. Lüdke.
68 *Chronic Irritation of the Intestines Secondary to Stomach Disease. (Ueber die vom Magen ausgehenden chronischen Reizzustande des Darmes.) S Jonas.
69 Whooping-Cough Endotoxin Reaction. (Allergische Reaktion mit dem Bordet-Gengouschen Keuchhusten-Endotoxin.) R. Neurath.
70 Massage in Diagnosis and Treatment of Muscular Rheumatism. A. Muller.
71 Technic for Thiersch Flaps. (Die Transplantation nach Thiersch.) O. Nordmann.
72 Typhoid and Paratyphoid Fever. N. Ortner. Concluded.

66. **First-Aid for Injuries of the Eyes.**—Von Hess says that he has seen a number of cases in which the optic nerve had been cut by a bullet while the eye itself had scarcely been injured. When the eye is injured the first thing is to determine whether it is perforated or not. If the tension of the eyeball is found reduced, on cautious palpation, there is certainly perforation, but this cannot be excluded even if the tension is found normal; the hole may close up behind a minute splinter in the eyeball. A hemorrhage in the anterior chamber is generally absorbed in a week or so, but when the blood penetrates into the vitreous body it is never entirely absorbed. A copper scrap is peculiarly dangerous in the eye, as it rapidly induces aseptic suppuration; when a copper splinter is supposed to be in the eye, the man should be rushed to a specialist with extra speed. Iron or steel scraps, on the other hand, do not threaten special danger for a few days. It may be weeks or months before siderosis bulbi develops. Lead should be got out early.

He says that sympathetic ophthalmia develops only when a chronic iridocyclitis follows on a perforating injury of one eye. The signs of this are discoloration of the iris, a precipitate with tenderness and photophobia and congestion in the ciliary region—evident a week or two after the injury and especially when the ciliary region was involved in it. With these findings the patient had better be advised to have his eye enucleated, as this alone will protect certainly against sympathetic ophthalmia. If the eye suppurates after the perforating injury (hypopyon, panophthalmia), sympathetic ophthalmia need not be feared. A small superficial foreign body can be removed with a small scalpel at need, holding it flat; it does no harm to slice off some of the epithelium around, as this regenerates in a day or so under a well-fitting bandage. At the front, foreign bodies which are not superficial should be left unmolested. No occlusive dressing should be applied to the eye when there is much conjunctival secretion. The eye should not be bandaged except when there is a loss of substance in the cornea or prolapse of the iris. Even after opening a stye, the eye should not be bandaged. Mucous or purulent conjunctival secretion can be combated in emergencies by everting the lids and dabbing them with a 1 or 2 per cent. solution of silver nitrate once or twice a day. This must never be instilled into the eye.

68. **Gastrogenous Diarrhea.**—Jonas tabulates the findings in five cases of achylia, in five of hyperacidity and in five of extreme gastroptosis. Comparison of these groups shows that the behavior of the pylorus in abnormal conditions is what determines whether diarrhea or constipation shall prevail. When it is unduly permeable, as with achylia, subacidity, and in some cases of hyperacidity and atony, there is a predisposition to diarrhea, while the reverse tendency prevails with defective motor functioning of the stomach and bowel and unduly long closure of the pylorus.

Münchener medizinische Wochenschrift, Berlin

October 20, LXI, No. 42, pp. 2089-2124

73 *Increased Pressure in Cerebrospinal Fluid in Certain Eye Diseases. III. (Lumbaldrucksteigerung bei Iritis und Chorioiditis.) L. Heine.
74 *Technic for Serodiagnosis. (Zum Nachweis der Blutfreiheit der, zur Abderhaldenschen Reaktion verwendeten Substrate und Seren.) Fetzer and Nippe.
75 *Arrest of Coagulation by Syphilitic Serum. (Ueber die Gerinnungshemmung durch Luessera—Hirschfeld und Klinger—und die chemische Natur des Zytozyms.) E. Fränkel and F. Thiele.
76 Tachysystole of the Auricles and Irregular Pulse. (Rhythmische Vorhoftachysystolie und Pulsus irregularis perpetuus.) H. E. Hering. Commenced in No. 41.
77 *Open Treatment of Suppurating Wounds. (Offene Behandlung eiternder Wunden.) F. Schede.
78 Determination of Typhoid Bacilli in the Stools. (Ueber das Bierastsche Verfahren der elektiven Beeinflussung von Bacterium coli zum Nachweis von Typhusbazillen im Stuhl.) H. Schmitz.
79 Treatment of Traumatic Tetanus with Serous Transudate from the Abdomen. S. Durlacher.
80 Dumdum Bullet Wounds. (Dumdumgeschossverletzung.) Kreitmair.
81 Lint for Dressings. (Scharpie als Verbandmaterial.) F. Brunner.
82 Need for Economy with Cotton Dressings. (Seid sparsam mit den baumwollenen Verbandstoffen!) F. Williger (Berlin).
83 Cross Sections of Arm and Leg. (Querschnitte.) H. Krauss.
84 Prophylaxis of Epidemic Diseases in the Field. (Bekämpfung der Kriegsseuchen im Felde.) A. E. B. Nocht. Commenced in No. 40.
85 Field Dressings and Infection. H. Kümmell.

73. **Pressure on the Brain with Certain Eye Diseases.**—Heine says that if we regard the cornea as a protruding part of the brain, then the meninges are practically continuous with the uveal tract. The first sign of irritation of the meninges is increased secretion of cerebrospinal fluid, and he found this pronounced in over three-fourths of 63 cases of uveitis. The coincidence occurred too regularly for it to be regarded as casual. It testified that with inflammation in the choroid, the iris or the ciliary body, the meninges share in the irritation. In 16 of the 30 cases of iritis, it was of tuberculous origin; syphilitic in 5; gonorrheal in 1; all three in 1; in another case there was sinusitis and in another diffuse atheroma. In the 33 cases of choroiditis, 13 were of tuberculous and 10 of syphilitic origin. Twenty-four of the patients in each group were men. In the 30 cases of iritis one eye only was involved in 23, but only in 8 of the 23 choroiditis cases.

74. **Technic for Serodiagnosis.**—Fetzer and Nippe call attention to the value of the malachite green test in revealing by a change in color the slightest admixture of blood. With the aid of this test it is possible to avoid serious error from the presence of blood in doing the Abderhalden test.

75. **Coagulation Test for Syphilis.**—Fränkel and Thiele confirm the diagnostic importance of the inhibition or delay in coagulation as a sign of syphilis. In seventy cases tested the findings paralleled those of the Wassermann test. The coagulating influence seems to proceed from the ether-soluble fraction of the thrombokinase or cytozyme. Syphilitic serum destroys this, and thus prevents coagulation. (Compare with Abstract 75, page 1241.)

77. **Open Treatment of Suppurating Wounds.**—Schede asks what is the use of trying to keep profusely suppurating wounds bandaged. The body is striving to throw off infected secretions, and why cannot we help it in this task instead of our futile efforts to staunch the copious discharge. Oftener than not, the dressings directly hinder instead of promoting Nature's efforts, while the changing of the dressings threatens the environment. An illustration shows the two plaster casts and iron strip frame between, with which he secured the rapid healing of severe shrapnel injuries of the leg. Almost at once the secretions lost their fetid odor and purulent character, the fever subsided, and necrotic tissue was cast off by healthy granulations. When the secretions are too thick to drip, he steams the wound under a cover and thus obtains a "moist dressing" without the drawbacks of shutting off the air and retention of secretions. In other cases superheated air answers the purpose better. If the suppurating focus is on the top of the leg, he provides for drainage by a counter incision in the depths of the lesion. The great advantage of this plaster-cast open method, he reiterates, is that each lesion can be treated as it needs, open or covered, moist or dry, aseptic or antiseptic, and it can be bandaged at any time when the healing has progressed to render this desirable. The plaster and the iron cost far less than the constantly to be renewed dressings with such a lesion, while the patient is spared all the pain and discomfort of change of dressings.

Wiener klinische Wochenschrift, Vienna

October 15, XXVII, No. 42, pp. 1363-1378

86 *Lumbar Puncture in Chorea. (Lumbalpunktion bei Chorea infectiosa.) F. Passini.

October 22, No. 43, pp. 1379-1398

87 *Dentistry Protheses for the Wounded. (Der Zahnarzt im Kriege.) M. Kraus.

86. **Lumbar Puncture in Treatment of Chorea.**—Passini remarks that the latest text-books have changed chorea from the "diseases of the nervous system" chapter to the chapter on "infectious diseases." Recent research has apparently demonstrated that the choreic movements are the result of irritation of the cerebral tracts passing from the red nucleus to the dentate nucleus. He examined the spinal fluid in a number of cases of chorea developing secondary to acute articular rheumatism; some of the children had signs of having passed through endocarditis, but all were free from fever and the chorea had been under way for several weeks unmodified by any measures. Lumbar puncture in five exceptionally severe cases showed that the fluid was under high pressure, from 30 to 40 c.c. spurting as the patient reclined and still more escaping as the child sat up. The fluid was clear and apparently sterile. In three of these five cases the chorea promptly and permanently subsided after the lumbar puncture. In the two other cases the chorea was of a year's standing and no benefit was derived. The lumbar puncture was repeated later and showed normal pressure, but the choreic movements persisted unmodified. Evidently the part of the nervous system involved had suffered beyond possible recuperation from the overpressure or from toxic elements in the cerebrospinal fluid. Lumbar puncture before irreparable lesions are installed seems to have a direct curative action.

87. **Dentistry Protheses in Military Surgery.**—Kraus concludes his remarks on the necessity for trained assistance in this line for the wounded, by urging that the results are incomparably better when the prothesis is applied early. Healing can then proceed along normal lines and there will be nothing to undo later, while old disfiguring deformity in hard callus is difficult to correct.

Zentralblatt für Chirurgie, Leipsic

October 24, XLI, No. 43, pp. 1609-1632

88 *Treatment of Ascites. II. (Zur Beseitigung des Ascites.) J. Kumaris.

89 *Phenol-Camphor in Local Treatment of Phlegmons in Joint and Tendon Sheaths. (Hochprozentige Karbol-Kampferspiritusinjektionen gegen Phlegmonen in Gelenken und Sehnenscheiden.) G. W. Schiele.

88. **Ascites.**—Kumaris reports here three cases in which the technic he advocates has been applied with perfect success. He excises a patch of the parietal peritoneum and thus induces adhesions. (Described in The Journal, Jan. 31, 1914, p. 421.) One patient died twenty-two days later from erysipelas, and there was no fluid found in the abdomen. The cure was complete when the patient was seen a month later in another case, and also during the six months to date in the third case. This patient was a man of 55. The incision was carried down to the mesentery of the ascending colon, up to the cremaster hepatis and toward the colon on the left. A tongue-shaped flap was then cut in the peritoneum and turned back over the fundus of the bladder, and a wisp of omentum was drawn down into the exposed space of Retzius. A stretch of the prevertebral peritoneum was also loosened up. By the end of forty-eight hours the edema in the ankles had disappeared, the abdomen was free from pain, the walls soft and edematous. There was slight oozing from the upper part of the wound for a few days, and then a subcutaneous infiltration required puncture the fourth and sixth weeks, after which approximately normal conditions were restored and have been permanent to date.

89. **Phenol-Camphor for Phlegmons.**—Schiele writes to corroborate the great benefit from injection of a mixture of 30 parts liquefied phenol with 50 parts triturated camphor in 8 parts alcohol. He has never witnessed anything suggesting intoxication with this treatment, while his invariable success with it has convinced him that practically always it will abort incipient phlegmonous processes in cavities, especially in large and small joints and tendon sheaths, and the method deserves a trial in gunshot wounds and tardy abscesses. Among the typical cases described is that of a young woman with a phlegmon in the sheath of the flexor tendon of a finger. He filled the cavity with the mixture and the tendon could be exercised without pain, and the three incisions healed without impairment of function. The injection was repeated daily, the tendon swimming in the oily fluid. In another case 5 gm. of the fluid was injected into the knee joint every second day after evacuation at first of 150 gm. of purulent secretion. The phlegmon had followed an external injury. The pain and fever disappeared promptly, and by the third day the man of 55 was walking, using the knee.

Zentralblatt für Gynäkologie, Leipsic

October 24, XXXVIII, No. 43, pp. 1345-1368

90 Mechanism of Delivery with Fractured Acetabulum and Dislocation of Head of Femur. A. Mayer.

Zentralblatt für innere Medizin, Leipsic

October 24, XXXV, No. 43, pp. 953-968

91 *Production of Antibodies in Leukemia. (Fähigkeit von Leukämikern Antikörper zu erzeugen.) H. Rotky.

91. Antibody Production in Leukemia.—Rotky reports a series of experiments on eight patients with tuberculosis or multiple sclerosis and on two leukemics, testing them all for agglutinating properties in the blood. The findings confirmed in every respect Moreschi's recent statement that the blood in leukemia has no agglutinating power. Rotky accepts this as indicating incapacity for production of antibodies, and suggests that this explains the lack of resisting power in leukemia to otherwise harmless infections.

Gazzetta degli Ospedali e delle Cliniche, Milan

October 18, XXXV, No. 118, pp. 1813-1828

92 Leukemia. (Leucemia e morbi affini.) P. Castellino, A. Ferrata and G. Rummo.
93 Non-Tuberculous Apical Disease. L. Devoto and E. Tedeschi.
94 Gastric Neuroses. A. Ferrannini and F. Schupfer.

October 22, No. 119, pp. 1829-1844

95 Transvesical Prostatectomy. F. Marinelli.

Riforma Medica, Naples

August 8, XXX, No. 32, pp. 871-896

96 The Liver-Pancreas Syndrome in Diabetes. U. Deganello. Commenced in No. 31.
97 Case of Myasthenia Gravis. (Morbo di Erb-Goldflam.) M. Marzemin.
98 Treatment of Acute Rheumatism. G. Paoletti.

August 15, No. 33, pp. 897-924

99 Leukemia, Hemolytic Jaundice and Splenic Anemia. (Sulle emopatie splenomegaliche I.) G. Rummo. *Continued to No. 40.*
100 The Colloidal Gold Reaction in the Cerebrospinal Fluid. E. Debenedetti and C. Olivero.
101 Postoperative Gastro-Intestinal Hemorrhage. G. Romano.

August 22, No. 34, pp. 925-952

102 Diagnosis and Prophylaxis of Cholera. S. Livierato. Concluded in No. 35.
103 Hemorrhage from Movable Kidney. (Ematuria da rene mobile.) B. Anglesio.
104 Prophylaxis of Trachoma in Schoolchildren. M. Mazzitelli.
105 Malaria in Italy in 1912. A. Celli.

Russky Vrach, Petrograd

June 27, XIII, No. 24, pp. 837-868

106 *Progressive Pernicious Anemia M. P. Mikhailoff.
107 *Cultivation of Tissues Outside the Body. M. V. Veselkin and E. A. Kartashevsky.
108 *Large Doses of Camphor in Pneumonia. M. S. Markevitch.
109 Action of Camphorated Oil on Interchange of Gases. N. A. Beloff. Commenced in No. 9.

July 4, No. 25, pp. 869-900

110 *Astringents and Opium Contra-Indicated with Intestinal Insufficiency. P. P. Brukhanoff.
111 *Roentgen Exposures of the Thymus in the Treatment of Exophthalmic Goiter. S. M. Sinozersky.
112 *Action of Epinephrin on the Blood-Pressure in Typhoid and Pneumonia. S. M. Mansvetova.
113 Trypanosomes in the Blood of Jumping Rodent. G. I. Koltzoff.
114 *Laboratory Anthrax Infection. N. V. Popoff. (Sibersk. yazv.)
115 *Nucleoproteids of Dysentery Bacillus. E. A. Neitz.
116 *Washing the Blood Outside the Organism; Artificial Jugular Pulse. I. P. Mikhailoffsky.

106. Progressive Pernicious Anemia.—Mikhailoff reports excellent results from spleen extract in the treatment of pernicious anemia. He produced pernicious anemia in 18 rabbits by injecting phenylhydrazin for four to five days. Ten were left without treatment and 8 of these succumbed by the third to the fifth day. The other 8 rabbits were treated with spleen extract, and in all the blood-picture returned almost to normal. Encouraged by these results, Mikhailoff used this treatment in a very severe case of pernicious anemia in a man of 26, who had had every other known treatment applied without benefit. About 2.5 c.c. of a 2 per cent. solution of an extract of spleen substance was injected and improvement was noticed after the seventh injection and a complete cure obtained after the fiftieth. Six months later the hemoglobin rate was 95 per cent.; the reds numbered 5,125,000; the whites, 6,800; the color index was 0.90. Equally good results were obtained in two other out-patients. Mikhailoff explains the favorable action of the spleen extract in the treatment of pernicious anemia by the presence of hormones which stimulate the functioning of the blood-making organs.

107. Cultivation of Tissues Outside the Body.—Veselkin and Kartashevsky claim that if the blood plasma of diabetics reduces the regenerative vitality of tissue, as is apparently evidenced by the serious course of skin lesions in diabetics, then the growth of tissues in plasma of this kind would be inhibited and be different from that in healthy plasma. They experimented on cats whose pancreas had been partially or totally removed under ether. Spleens of kittens were used for cultivation purposes. The spleen tissue showed normal growth in the plasma of both the pancreatectomized cats and the controls, demonstrating that the removal of the pancreas does not affect the regenerative power of the tissue cells, but only reduces the vital resistance.

108. Camphor in Pneumonia.—Markevitch advocates the use of 10 per cent. camphorated oil in the treatment of croupous pneumonia in doses of 5 c.c. four times daily or 10 c.c. twice a day of a twice stronger solution. The camphor was given by hypodermic injections combined with digitalis internally. The 226 male patients treated by this method gave 6.6 per cent. mortality, while of 322 treated without camphor 13.3 per cent. died. In 133 grave cases of pneumonia, 66 had no camphor treatment, with 48 per cent. mortality, while of 67 given the camphor as above only 15 died, namely, the mortality rate was only 22 per cent. Camphor thus considerably lowers the death-rate. The temperature usually fell by lysis; if a crisis occurred it was generally on the ninth day, instead of the seventh, which fact Markevitch explains by the gravity of the cases treated. Dyspnea is relieved, the respiration becomes quieter and deeper, the temperature subsides in two or three days; there is no delirium; the sputum decreases, the appetite reappears, and with the improvement of the general conditions recovery sets in. The local pneumonic process is little influenced by this treatment, though the area of consolidation was found diminished. The only by-effects were painful infiltrations at the points of injection, especially when the camphor got into the subcutaneous fat. There was suppuration at the point of injection in only two cases in the four years. Camphor has a bactericidal action, it is slowly absorbed, and thus gradually and quietly brings on lysis.

110. Diarrhea After Resection of Intestines.—When part of the intestines are excised, the remaining portions take on themselves the task of the resected part. If the processes of digestion and absorption continue normally, then the intestines are sufficient, but otherwise not. One of the annoying and dangerous signs of intestinal insufficiency is diarrhea. The question arises whether it is not possible to stop such a diarrhea by administering an astringent or opium. To settle this question, Brukhanoff made fistulas at various points along the gastro-intestinal tract of dogs, and studied the digestive processes after short-circuiting the bowel by resecting the jejunum or ileum. He found that with intestinal insufficiency the astringents and opium did not inhibit the passage of food through the intestinal tract, but rather accelerated it, and that these drugs acted unfavorably on digestion and absorption, and did not influence the decomposition of albuminoid substances. Therefore, he concludes, it is not advisable to administer astringents or opium in the diarrhea caused by intestinal insufficiency. The only rational treatment is dietetic.

111. Roentgen Exposures of the Thymus in Treatment of Exophthalmic Goiter.—Sinozersky studied on twenty patients with exophthalmic goiter the rôle played in its production by the thymus gland. Some were given Roentgen treatment of the thymus after two or three thyroid vessels had been ligated, but the majority had this treatment before any operative measures. The condition of the thymus gland was estimated by dulness on percussion over the sternum and to the left, after a tumor or aneurysm had been excluded by roentgenoscopy showing a shadow moving up and down the aorta during respiration, and by blood examination—increased numbers of lymphocytes (55 per cent.) and reduced polynuclears. Preliminary experiments on young dogs and rabbits showed that exposures to the Roentgen rays cause atrophy of the thymus. Roentgen treatment of Basedow's disease, directed against the thymus, with exposures every three or four days, gave marked improvement after five or six sittings. The pulse fell to 80 from 120 or 140; the goiter, the sweating, nervousness and exophthalmos decreased and the blood showed a decrease in the number of lymphocytes and increase of the polynuclears. As the skin in Basedow's disease is very sensitive to the Roentgen rays, an interval of three weeks is necessary before entering on another series of exposures. His conclusions are that the rôle of the thymus gland in the pathogenesis of exophthalmic goiter is established now beyond question.

112. **Epinephrin in Typhoid and Pneumonia.**—Mansvetova used epinephrin in infectious diseases, pneumonia, typhoid and paratyphoid, to improve the heart action. In order to determine the necessary dose of the 1 per thousand solution of epinephrin, she injected hypodermically 0.5 c.c. in 13 patients; 0.75 c.c. in 10 patients, and 1 c.c. in 7 patients. She found that 1 c.c. caused a rapid and considerable rise of the blood-pressure during systole, while the diastolic decreased; 0.75 c.c. also raised the blood-pressure, but more gradually. The action is rather inconstant; the systolic increases, the diastolic falls. The dose of 0.5 c.c. caused a less pronounced increased blood-pressure, and in these doses, given every hour and twenty minutes or every ninety minutes, the weakened circulation could be maintained for a long time. These small doses do not affect the peripheral circulation, but cause dilatation of the coronary arteries of the heart, thus improving the circulation in the cardiac muscle and its nutrition. The larger dose of 1 c.c. is indicated when a rapid rise in the blood-pressure is necessary, as, for instance, in postoperative shock, collapse or acute poisoning, but in acute infections so large a dose should not be used, as the heart under the toxic influences may be unable or too weak to respond to such a dose.

114. **Laboratory Anthrax Infection.**—Popoff reports a case of fatal septicemic anthrax of the left bronchus in a patient who had contracted this disease in a laboratory in which anthrax vaccine was prepared. The organs showed parenchymatous changes, such as are caused by any toxemia. He concludes that death from anthrax is caused not by mechanical, but by toxic influences, and that the infection may take place sometimes through aspiration or inhalation. Prophylactic vaccination against anthrax, serodiagnosis and serotherapy are of tremendous importance, especially in Russia, he says, where in the army 61 persons die annually from this cause on an average, and during the years 1904 to 1908, 80,498 persons and 218,956 horses and cattle throughout Russia were affected with it.

115. **Nucleoproteid of Dysentery Bacillus.**—Neitz obtained from bodies of Shiga-Kruse bacilli an albuminoid substance with the chemical properties of a nucleoproteid. The latter proved to be extremely toxic for dogs and rabbits, as death would occur on the second or third day after injection into rabbits in the ear, abdominal cavity or under the skin. The temperature falls by 5 or 9 degrees C., general convulsions set in, collapse, dyspnea and paresis of the hind limbs make up the clinical picture of poisoning, with frequently diarrhea two or four hours after the injection of the nucleoproteid. The blood culture always proved negative. The serum of animals immunized by repeated injections of dead Shiga-Kruse bacilli (heated to 60 or 65 C.) precipitates the nucleoproteid from its solution. The serum of rabbits rendered immune by repeated intravenous injections of 1 per thousand nucleoproteid solutions agglutinates Shiga-Kruse bacilli, but no other type of dysentery bacilli.

116. **Washing the Blood.**—Mikhailoffsky connected with long tubes the upper end of a bottle with the right femoral artery of a dog and the lower end with the right external jugular vein. The bottle was filled with Locke's fluid. Having removed the clamps, he let the arterial blood run into the bottle, and from the latter pass with the Locke's fluid back into the jugular vein. When a fourth of a liter of blood had been let out, he connected the femoral artery directly with the jugular vein through a tube 40 inches long, and he could see and feel the pulsation of the jugular vein—an actual artificial pulse. The Locke's fluid saturated with blood was then replaced by a new quantity of the same fluid, without blood, and the experiment was repeated. About two-thirds of a liter of blood was thus removed, and neither the pulse nor the respiration showed change. These experiments suggest that Locke's fluid may replace normal blood, preventing its coagulation in vitro, that the blood may be greatly diluted with it without fatal complications for the animal, that an artery may be directly connected with a distant vein, no thrombus forming, and that an artificial venous jugular pulse may be obtained, and that the blood may thus be safely washed out in uremia, cholemia, snake poisoning, ptomain poisoning, etc.

Hospitalstidende, Copenhagen

October 21, LXII, No. 42, pp. 1273-1296

117 *Convulsions in Whooping-Cough. (Om krampe ved Kighoste.) S. T. Sørensen.

October 28, No. 43, pp. 1297-1320

118 *Radiotherapy of Lupus and of Bone and Joint Tuberculosis. (Om Anvendelse af kunstige Lysbade ved Lupus vulgaris og kirurgisk Tuberkulose.) A. Reyn and N. P. Ernst. Concluded in No. 44.

117. **Convulsions in Whooping-Cough.**—Sørensen has noticed that when convulsions occur in the course of whooping-cough they are generally accompanied by fever which may run very high. This suggests that the same cause inducing them may have a paralyzing action on the heat-regulating center. In the 26 cases he has encountered, 21 terminated fatally; the convulsions in 15 of the fatal cases developed once at the beginning of the disease, five times in the second and five times in the fourth week, and once the third, fourth, sixth and eighth weeks. The date is not known in 6. Only 5 patients with the convulsions recovered, but in the majority of the fatal cases death was due to pertussis pneumonia, the convulsions being secondary to this when they did not develop until the fourth week or later. One child of 3 had fever and cramps in his arms with meningitic symptoms and unilateral facial paralysis for ten days before the pertussis manifested itself. As this developed, the other symptoms subsided completely. In only one other case were there symptoms on the part of the meninges, and both these children were 3 and 5; all the others were infants. In one of the few cases that came to necropsy, thrombosis in the longitudinal sinus was pronounced, but the bacteriologic findings were negative. The children who had convulsions were all without exception of the spasmophilia type, the nervous system unstable.

118. ***Radiotherapy of Lupus and Bone and Joint Tuberculosis.***—Reyn and Ernst give a number of illustrations "before and after" treatment in forty-two cases of lupus, all but five being very old and mutilating cases. They prefer to call this method of treatment artificial heliotherapy, as their aim is to use a light which resembles direct sunlight as closely as possible, and this they think is the carbon arc light. Of the thirty-seven cases rebellious to all previous measures, nine were completely cured and twenty remarkably improved, and the improvement is still continuing. Two of the patients died soon after the treatment had been begun; the interval since has been too short in the other cases for estimation of the final outcome. They were much impressed with the improvement in the general health under the artificial heliotherapy. The universal chemical light bath was Finsen's ideal, they state, rather than intensive local exposures to the light. The light baths were given daily or two or three times a week; some patients were cured with fifty-one exposures; the one requiring the longest course had 208 exposures; the one requiring the longest course had 208. The baths were never over two and a half hours in duration.

Ugeskrift for Laeger, Copenhagen

October 22, LXI, No. 43, pp. 1837-1892

119 Dwarf Growth from Fetal Chondrodystrophy. (Om Dværgvækst som Folge af Chondrodystrofia foetalis.) V. Poulsen.

120 The Food in the Prisons of Germany and Denmark. (Fængselskost.) A. Erlandsen.

The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. LXIII, No. 24 Chicago, Illinois December 12, 1914

THE RELATION OF THE MEDICAL SCIENCES TO CLINICAL MEDICINE *

FREDERIC S. LEE, Ph.D.
Dalton Professor of Physiology, Columbia University
NEW YORK

In the medical curriculum there has come to exist a distinction between the medical sciences and the clinical subjects. At the middle of the course of four years there is a more or less sharp break — the student drops his science, the pursuit of which he has sometimes looked on as a burdensome, if not superfluous, experience, and turns abruptly to what he is often inclined to regard as the real thing in his preparation for professional work. Even the medical practitioner sometimes assumes a similar attitude toward the two groups of studies, and teachers of clinical medicine have not always been free from the encouragement of such a notion. That such an idea is wrong goes without saying, for it receives no sympathy from the best minds of the medical profession. Yet this arrangement of studies has not always existed; the present medical curriculum, which in its main features is essentially the same the world over, is a product of evolution, and one of the striking incidents of its recent history is the prominence that has been acquired by the medical sciences. It may be helpful to look into the rise of these sciences in some detail.

EVOLUTION OF THE MEDICAL SCIENCES

Anatomy is the original and it still remains the traditional medical science. For centuries religious and social prejudices against the dissection of the human body confined anatomic study largely to the lower animals; nevertheless, even in the days of the Alexandrians, three hundred years before Christ, students of medicine probably had opportunities to witness frequent human dissections by Herophilus and Erasistratus and their followers. Later human dissection fell into disrepute and then revived, and by the fourteenth or the fifteenth century it became a part of the routine of medical instruction at the leading European universities. It received a new impetus from the great anatomists of the sixteenth century, led by Vesalius, but even then the students had little anatomic opportunities except to look on at demonstrations by the leaders or, more commonly, by the barbers or surgeons who actually handled the organs and tissues. It was not until the eighteenth century that the use of the scalpel by the student himself became at all common; and from that time until almost the present day the dissecting-room has been regarded as the student's proper abiding place during all his hours outside the lecture or clinic. It is obvious — and to no one more than the anatomist himself — that the gross structure of the human body presents a limited field of study for both the investigator and the undergraduate. In the last fifty years it has been supplemented and illumined by the study of microscopic structure, of embryologic development, and of genetic relationship, and has thus become broader and more helpful than before. But even with these additions, anatomy does not now occupy, and can never hope to regain, its former unique position as the one medical science deserving a separate place in the medical curriculum. Anatomists are entitled to great credit for having impressed on medicine the importance of their science during all the centuries; it helped to raise medical art above the degrading empiricism and speculation with which it was beset; it long kept alive the scientific spirit; and if its preeminence in medical study is now lessened this change must be ascribed, not to the fault of anatomy or anatomists, but largely to the general scientific renaissance through which we are passing.

Physiology, like anatomy, is one of the classical medical sciences. It is of prehistoric origin, for doubtless men always interested themselves in the working of their own bodies. At the time of the height of Grecian culture and of Alexandrian wisdom it had risen to an honorable place among the departments of human knowledge. Five hundred years later it was enriched by the labors of the immortal Galen. Through the middle ages it slumbered. In the sixteenth century it received an undying impulse from William Harvey and his discovery of the circulation of the blood, and from that time to the present it has had an unbroken advance, more rapid with each succeeding decade. During the century that has just closed, along with the passing of the doctrine of vitalism and the rise of the conception of the conservation of energy in physics and that of oxidation in chemistry, physiology has developed along two main lines and has come to be known as the science of the physics and chemistry of living matter; and as the content of the science augments, these two lines, although possessing a common aim, are forced by their different points of view and their different technical methods to diverge from one another. As a matter of medical education physiology had no separate status of its own until the eighteenth century. It was taught as an integral part of anatomy, the function of a part being naturally considered in connection with its structure. In the eighteenth century physiology came to be recognized as deserving of specific mention in the medical curriculum, but it

---

* Address delivered at the opening of the session of 1914-1915 of the Columbia University College of Physicians and Surgeons.

was still united with other subjects, the choice of its companion apparently being determined by local circumstances. When the first medical school of Kings College, the forerunner of Columbia, was established in 1767, physiology and pathology together constituted one chair. The first physiologic laboratory was established at Breslau in 1839. The subject was first taught by means of lectures exclusively, but during the nineteenth century demonstrations gradually crept in. In this country the demonstrative teaching of Dalton, who came to the College of Physicians and Surgeons in 1854 fresh from the inspiring laboratory of Claude Bernard, created much enthusiasm and inaugurated a new era for American students of medicine. It is within a period of only about twenty-five years that laboratories of physical and chemical physiology for the general body of students have become common, and undergraduate students at last after all the centuries of growth of the science have been given the privilege of learning it. In Europe physiologic laboratories are not so well equipped for instruction as they are in this country, and it may truthfully be said that few medical practitioners in any country who have passed the age of fifty have had adequate opportunities to learn the methods of this science, to them most indispensable, or to steep themselves in its spirit.

Although many individual diseases were well known to the ancients, pathology, the science of diseases, was necessarily largely a matter of theorizing until after the beginning of the revival of learning. By the sixteenth century those who dissected the human body began to be interested in the finding of abnormalities in the organs. This became gradually more and more common, and a mass of pathologic knowledge slowly accumulated; but it can hardly be said to have been organized for two hundred years and until the Italian, Morgagni, published in 1761 his remarkable five books on "The Seats and Causes of Disease as Investigated by Anatomy." There for the first time with any degree of completeness gross anatomic lesions were considered in relation to the clinical records of the diseases, and the science of pathologic anatomy may be said to have been born. It required still another hundred years before the cell conception was introduced into pathology by the great Virchow. Physiologic, or experimental, pathology was even slower in coming into being, for it could not well appear before normal function had become known. As with physiology so in pathology all teaching was at first didactic; later necropsies were employed for instruction; then the microscope was brought in for demonstrating the changes produced by disease in tissues; but not till about thirty years ago did undergraduate medical students have an opportunity themselves to prepare microscopic sections and examine them in the laboratory. The receiving of formal instruction in experimental pathology is still the privilege of the favored few.

Drugs have been used for therapeutic purposes from the earliest times, and the history of drug treatment is perhaps the strangest in all medicine. Here we see crude empiricism at its very worst. Although the ancients used many drugs intelligently the materia medica of the time of Queen Elizabeth contained, among remedies which may still be rationally used to-day, such monstrosities as cast-off snake's skin, dried vipers, foxes' lungs, spiders' webs, a plaster "compounded of viper's flesh, with live frogs and worms," oil of ants, oil of spiders and earthworms, "oil of puppies boiled with earthworms," cat ointment, and "moss from the skull of a victim of violent death." During the seventeenth and eighteenth centuries medical schools attempted some improvement by establishing botanical gardens to which students were expected to resort in order to study growing medicinal herbs, a strategy for inducing mental exercise which does not seem to have appealed strongly to the student mind. Pharmacology, however, the exact science of the physiologic action of drugs, did not appear until the nineteenth century when Magendie, the French physiologist, showed its possibilities. Its first laboratory was opened in Dorpat in 1856. Young as it is as a science, it is still fighting its way for independent laboratories and an adequate place in the medical curriculum.

But the youngest of all the medical sciences is bacteriology, and it has had the most rapidly brilliant career. All the world knows that its founders were Louis Pasteur and Robert Koch, and that less than half a century has passed since they began their epoch-making studies of the relation of micro-organisms to human diseases. It is since then that the most of the known species of bacteria have been discovered, and, what is of the greatest importance medically, the mutual physiologic relations of bacteria and their living hosts have become in a considerable degree elucidated. A knowledge of these physiologic relations has given us serums and vaccines and their therapy, and the whole fabric of immunity. As rapid as has been its growth, almost as quickly has bacteriology won its place in the medical curriculum, and it is the poor school now that does not possess a laboratory in which undergraduate students may personally experiment with disease germs.

From this brief glance at the evolution of the medical sciences we see that, with the exception of anatomy, they all have taken their places as separate branches of medical study during a period comprising even less than one hundred years. As time passes, therefore, their position within medical schools has been achieved only very recently. Moreover, the sciences that have thus come quickly into being as factors in medical education are chiefly those that have to do with function rather more than with structure — they are physiologic rather than morphologic sciences. Hence they are sciences that progress by means of experiment rather than by simple observation. In detail they include physiology itself, physiologic and pathologic chemistry, physiologic pathology, pharmacology and the greater part of bacteriology. This fact of the great inroad into medical education of these physiologic sciences is, I venture to think, a very remarkable and significant fact; for it indicates that they are of vital importance to the practitioner of medicine. Their influence is threefold: In the first place, they supply the future practitioner with a vast mass of systematized knowledge of the ways in which the complex human body performs its work, physical and chemical work, both in health and in disease; they show how this work may be modified by drugs and other remedial measures; they show how perturbations of bodily functions may be prevented and how normal function, when once disturbed, may be restored. In other words, they give to the future practitioner the basis for his technical procedures and teach him the reasons therefor. Moreover, they show him how this knowledge has been obtained, where it is still incomplete, and the ways in which it may be added to. In the second place — and this is of equal if not greater importance — they reveal to the future practitioner the nature of the scientific method; they show him how many of the best of the world's minds have proceeded when confronted by the problems of nature, how they have analyzed and clarified these problems, how they have devised experimental methods for the purpose of investigating them, and how they have solved them. They teach him the nature of causation, the necessity of finding causes if natural phenomena are to be understood, and the fallacy of the idea, which is far too prevalent in medicine, that that which precedes is necessarily the cause of that which follows: that, for example, when a certain drug is given and a cure follows, the cure is necessarily due to the drug — *post hoc, ergo propter hoc*. They show the importance of exactness in all scientific work and how as the medical sciences have advanced they have become constantly more exact. Moreover, they show that the problems of the practitioner are simply problems of Nature — the problems of the bedside are the same in kind as the problems of the laboratory, and they demand for their solution the attitude of the man of science. In the third place, if instruction in the medical sciences is what it should be, it imbues the student with a love for science and the scientific method; it fills him with the scientific spirit, without which no follower of medicine can attain the best.

CLINICAL MEDICINE

Now let us turn from the consideration of the sciences to that great body of knowledge which constitutes modern clinical or practical medicine. It is a wonderful achievement of man. It represents the efforts of countless human minds, each working during his brief generation, while the whole is the product of the restless labor of centuries. It has had a manifold origin — individual experience, philosophical theory, speculation that cannot lay claim to the title "philosophical," and occasionally chance and accident have all contributed their share, and through it all but rising into commanding prominence in modern times there can be found the desire to discover causes, to connect causes and effects, to control effects by influencing their causes, and to substitute rationalism for authority — and this is the essence of science. If the history of medicine is to be summarized, it may be conceived as a constant conflict between empiricism and speculation on the one hand and science or something that corresponds to science on the other. Each side has had its victories and its defeats; each has had its periods of ascendency and its periods of decline; neither side has been wholly wrong; medicine at all times has been a mixture of the two; nevertheless the scientific conception and the scientific method have gradually won their way, they have demonstrated their merit, and they are bound to prevail in the end.

A striking chapter from the history of this conflict is illustrated by the course of medicine in Germany during the past century. In the first half of the century it fell on evil ways and descended to a low level. In 1854 — only sixty years ago — the clear-sighted Virchow wrote:

> German medicine on account of its views and dissenting "schools" has become the laughing stock of the world.

Oertel has graphically described the situation of the time. He says:

> There did not exist a well-founded universal scientific method of thought, investigation or teaching, but only opposed and battling "schools" and "systems" of medicine and therapy, such as homeopathy of Hahnemann, polypragmasia, Rademacher's system, Priessnitz's system, therapeutic nihilism, eclecticism, Bouillaud's bleeding to unconsciousness of the patient, Dietl's absolute condemnation of bleeding as a criminal offense (1849), Mesmerism and others. They formed the source of endless and senseless discussions, for they were all speculative and contributed much to the entertainment of their pompous defenders and the laity but not to the benefit of their patients. . . . It was not even a time of crude empiricism, but a fantastic period which, like a nightmare in individuals, occasionally arises during the life of a nation.

And yet Germany was then on the threshold of a great reform, for the medical sciences — pathologic anatomy, pathologic histology, physiology and pharmacology — were beginning to show to clinical medicine the pathway to higher things, and it was not many years before Germany had become the world's medical leader. But notwithstanding the triumphs of science the constituent parts of the great mass of modern medical knowledge are still of very unequal value; empiricism and speculation have not yet ceased to be; they are still the bane of medicine, and it is still necessary to contend against them.

As with everything that is of ancient origin, so in clinical medicine tradition is very potent. It is surprising to see to what an extent modern medical theories and practices come from the ancients and presumably therefore are purely speculative or empiric in their beginnings. This does not mean that they are therefore necessarily wrong, but their early ancestry always arouses suspicions in these days when science is smashing tradition right and left. Thus the fantastic doctrine of the humors, the beginnings of which seem to antedate all historical writings, still existed at the beginning of the nineteenth century. The pernicious fashion of blood-letting was practiced not only by Hippocrates four hundred years before Christ, but by the disciples of Hippocrates twenty-two hundred years after his death. The old treatment of pneumonia still persists, and from 20 to 40 per cent. of the patients still die. Quinin was used successfully for malaria by the Spanish invaders of South America in 1638 — an excellent example of the empiric introduction of an invaluable drug, the use of which medical science has now shown to be justified by its specific action on the malarial organism. A well-known American neurologist tells me that he frequently uses one of Galen's prescriptions and finds it very helpful. The celebrated Papyrus Ebers is said to record the fact that arsenic was used in the treatment of cancer even in ancient Egyptian times. The practice of greatly restricting the diet in patients suffering from acute febrile diseases was advocated and used by the "Father of Medicine," and is still practiced extensively, although the careful scientific work of Coleman now shows that it is to the disadvantage of the patient. The achievements of bacteriology have destroyed at once long-held and cherished traditions regarding the course, treatment and prevention of infectious diseases, and have enabled surgery to pass from an ancient to a modern art. Recent advances in our knowledge of the physiology of nutrition bid fair to place the traditionary topic of dietary treatment at last on a rational basis. With very many of the customary usages of present-day medicine it would probably be extremely difficult, if not impossible, to search out their origin, but every doctor who employs them should at least be able to justify their continued employment. One of the dangers to which students are exposed is that of learning the methods of their instructors without the reasons therefor and blindly carrying over the same methods into their own practice. This procedure, which may be called learning by inheritance, while implying a gratifying degree of respect on the part of the student for his professor, is not to be recommended, for while it may make a ready man, it does not make a full one. All young practitioners are subjected to this danger, often during their hospital service, and especially while serving on the staffs of the dispensaries. They there find that particular lines of treatment have, it may be, been long in use, certain prescriptions have become hallowed by age. It is not always easy to obtain and still less easy to remember their formulas, and to question their reason or practicability is not expected. The path of least resistance is to accept them, and this the younger doctor proceeds to do. What dispensary physician has not prescribed, without further thought of their constituents or physiologic actions, "Loomis' tonic," "tonic No. 6," "whooping-cough mixture No. 4," "epilepsy mixture," "Lockwood's sedative," "Pill Janeway," or their equivalents? Such a practice becomes too often mere mechanical routine, detrimental to the future growth of the scientific physician. I have heard it related of the great French physiologist, Magendie, that he was once demonstrating to some of his colleagues a new fact which he had discovered. His friends were skeptical of its validity and remarked that it could not be true because it was contrary to "the law of the membranes" — whatever that may be. To which the courageous savant replied that he knew no law of the membranes, but that there before them was the demonstrated fact. Adherence to tradition is right when tradition can justify itself, but a wholesome and well-balanced skepticism as to traditional medicine is the only safe and sure attitude of mind for the physician who would be progressive.

It is customary in these present days of great medical achievements to dwell on these achievements and to congratulate ourselves on what we have been able to accomplish. This is justified. Medical advance has indeed been marvelous; both medical science and clinical medicine are daily making magnificent conquests, and for this success no one has a greater admiration than I. But while in the face of such success self-congratulation is permissible to us, self-complacency, I submit, is not, for it cannot be denied that medicine has glaring deficiencies. It is of some of these that I wish, with your permission, now to speak—although in no pessimistic spirit. Consider the matter of diagnosis. Dr. Richard Cabot[1] has recently made a very frank and courageous, but very significant comparison, in the cases of three thousand patients who have died at the Massachusetts General Hospital, of the pathologic conditions actually found at necropsy and the diagnoses made during life from the clinical findings. He found the percentage of mistaken diagnoses to be as in the accompanying tabulation:

PERCENTAGE OF MISTAKEN DIAGNOSES FOUND BY CABOT

Acute nephritis	84	Phthisis, active	41
Acute pericarditis	80	Aortic stenosis	39
Hepatic abscess	80	Septic meningitis	36
Chronic myocarditis	78	Brain hemorrhage	33
Vertebral tuberculosis	77	Mitral stenosis	31
Bronchopneumonia	67	Gastric cancer	28
Renal tuberculosis	66.7	Tuberculous meningitis	28
Suppurative nephritis	65	Cerebral tumor	27.2
Peptic ulcer	64	Chronic glomerulonephritis	26
Acute endocarditis	61	Lobar pneumonia	26
Hepatic cirrhosis	61	Cancer of colon	26
Thoracic aneurysm	50	Aortic regurgitation	16
Chronic interstitial nephritis	50	Typhoid fever	8
Miliary tuberculosis	48	Diabetes mellitus	5

The average of mistaken diagnoses in these twenty-eight diseases is 46.5 per cent., or nearly one-half, and this in one of the leading hospitals of the country, where all available aids to correct diagnosis ought to be had! Dr. Cabot says: "The study of the details in these cases before and after death convinces me that, for the present and under the present limitations of diagnostic method, few of the mistakes tabulated above could have been avoided. . . . They mirror the methods of an average up-to-date hospital." Professor Orth, director of the Pathological Institute in Berlin, is said to have made the statement that "of all appendixes that have been submitted to him for examination by conservative surgeons with the clinical diagnosis of appendicitis, as many as 17 per cent. showed no disease." Dr. Starr tells me that the diagnosis of the location of brain tumors is a matter of probability, not of certainty, in 40 per cent. of the cases. We can easily identify a disease in a dead man, but what is needed is more accurate methods of finding it in the living one.

Does treatment afford us a greater cause for self-congratulation? In 1909 of the 732,538 deaths which occurred in the registration area of the United States, 90,868 resulted from pneumonia and other diseases of the respiratory organs; 90,456 from diseases of the circulatory organs; 81,720 from tuberculosis; 66,803 from nervous diseases; 48,430 from nephritis; 44,648 from diarrhea in infants; 38,020 from cancer and other tumors; 10,722 from typhoid fever, and 10,358 from diphtheria. Moreover, during the ten years from 1900 to 1910 there was a large increase within the registration states in the death-rate from certain forms of disease: diseases of the arteries, 396 per cent.; diabetes, 60 per cent.; organic diseases of the heart, 39 per cent.; cancer, 30 per cent.; nephritis, 18 per cent.; cerebral hemorrhage, 18 per cent., and cirrhosis of the liver, 14 per cent. When we realize that the registration area of the United States covers a comparatively small portion of the inhabited world's surface, we can form some notion of the huge army of the world's people who die each year from diseases for which there ought to be remedies. And the pronounced increase in the number of victims of some of these maladies reveals that medicine is not advancing as rapidly as are certain destructive agencies.

Sir William Osler's optimism in all things medical is pronounced, and hence it is the more interesting to read his words of prognosis. He says: Of typhoid fever: "Of the 1,500 cases treated in my wards, 9.1 per cent. died." Of pneumonia: It "is one of the most fatal of all acute diseases, killing more than diphtheria, and outranking even consumption as a cause of death." Of bronchopneumonia: "The death-rate in children under five has been variously estimated at from 30 to 50 per cent." Small-pox "in unprotected persons . . . is a very fatal disease, the death-rate ranging from 25 to 35 per cent." Of diabetes mellitus: "Personally I have not known an instance of recovery in a child." Of cirrhosis of the liver: "The outlook is bad." Of chronic Bright's disease: "The prognosis is extremely grave. . . . It is an incurable affection." Of pernicious anemia: "The ultimate prognosis in a great majority of cases is bad." Of leukemia: "Recovery . . . is practically unknown." Of diseases of the myocardium: "The outlook in affections . . . occurring late in life is extremely grave." Of aneurysm: "The outlook in thoracic aneurysm is always grave . . . in abdominal aneurysm is bad." Of Addison's disease: "The disease is usually fatal." Of the prognosis in epilepsy Osler frankly confesses: "This may be given to-day in the words of Hippocrates: 'The prognosis in epilepsy is unfavorable when the disease is congenital, and when it endures to manhood, and when it occurs in a grown person without any previous cause. . . . The cure may be attempted in young persons, but not in old.'"

---

[1] Cabot, R. C.: Diagnostic Pitfalls Identified During a Study of Three Thousand Autopsies, The Journal A. M. A., Dec. 28, 1912, p. 2295.

THE SCIENTIFIC AND THE PRACTICAL

From what I have said it is, I trust, sufficiently obvious that notwithstanding the high character of clinical medicine in many of its aspects and the great advances which it is making in many of its divisions, there is still everywhere imperfection, and serious imperfection, to be eliminated. Medicine is still very far from its ideal, which, I take it, is to maintain the individual in health, in other words in a physiologic state, if possible; and if he has lapsed from that state, to restore him to it. How can such an ideal best be attained? Two things are here needed.

In the first place, there must be a greater development of the medical sciences. "Medicine," says Dr. Victor C. Vaughan, the accomplished President of the American Medical Association, "consists of the application of scientific discovery to the prevention and cure of disease. All else which may go under the name of medicine is sham and fraud." The medical sciences have already accumulated a huge mass of material which is at the service of those who would utilize it in the treatment of disease. And yet there is still pioneer scientific work to be done everywhere. The more one labors to unravel the mysteries of the human body, the more intricate it seems to be; the farther one penetrates, the more one sees of unsolved problems. In the present stage of the evolution of the medical sciences the chief labor must be performed by the aid of experimentation, and here physiology, physical and chemical, must lead the way. The establishment of hospitals for the care of the sick and even for clinical research, the giving of large sums of money for the investigation of specific diseases, while having a certain value to the human race in the immediate saving of imperiled human lives, do not provide, I believe, the most direct path to the desired goal. The endowment of physiologic research, the dedication of a host of bright minds to the unraveling of the intricacies of the living mechanism, the learning of the ways in which the mechanism acts in health — herein, and herein chiefly, lies the secret of rapid, comprehensive medical advance. When once we know the normal activities of the body — and often while learning these — we can the more quickly discover the abnormal activities, and then the way to bring the diseased body back to the normal will soon be devised.

In the second place, in order to attain its ideal more completely, clinical medicine must be more fully saturated with a knowledge of the medical sciences, with scientific method and with the scientific spirit. The clinician must know more of what the physiologist, the pathologist, the pharmacologist and the bacteriologist are doing. Their discoveries are vital to him. Moreover, he must have so acquired the scientific habit of looking at the problems of nature that instinctively, when confronted by a case of disease, he will attack it, not as a matter of routine, not as he may have attacked a hundred other cases of the same disease before, for no two cases are wholly alike—nature never copies her works of art exactly—but as the man of science attacks one of his laboratory problems, with the critical, analytic spirit of the investigator, eager to find new facts and new points of view, eager to discover causes and relate them to effects. The problems of clinical medicine differ from the problems of the laboratory in this important respect: namely, that, while in the laboratory the investigator can establish the conditions under which he is to study, at the bedside the conditions are already established for him and he who is to officiate there must accept them. This makes his problem all the more difficult of solution.

Moreover, the practitioner in his professional capacity rarely has an opportunity to see the complex living mechanism with which he has to deal, in its normal state. When it is brought to him it is out of order, something has gone wrong, and the balance is upset. This may complicate the matter still more, for while it may be obvious that some of the parts are not behaving properly, it may not be so evident where the primary seat of the trouble lies. The practitioner cannot take the mechanism apart, as can the laboratory worker, but must necessarily deal with symptoms, and here is one of his dangerous pitfalls. For one who has learned the conventional clinical routine it is easy enough to prescribe for symptoms; but prescribing for symptoms alone is the resource of the ignorant and the inert. In current discussions of diseases we often hear that learned and awe-inspiring word, "syndrome," which is full of mystery to the uninitiated. A syndrome means a certain group of symptoms which are found to occur together. They may be related obviously or they may involve widely diverse organs. While the word is used in different fields of medicine it has become especially prominent in neurology, which already recognizes more than fifty different symptom complexes. Syndrome is a convenient word, but there is a real danger in its use, and this lies in regarding it as a finality. The symptoms, or the group of symptoms, is nothing if one cannot go deeper and find the anatomic and physiologic conditions which underlie the obvious signs. "Many neurologists think," says Dr. Tilney, "that when they have got down to a mass of symptoms, they have got to the end. Really they haven't begun. They are looking through the wrong end of the telescope." The excellent analytic work of Dejerine and von Monakow — and not to go to a greater distance from home — in our own laboratories and clinics the work of Professors Pike and Tilney indicate the advantages of placing clinical neurology on an exact anatomic and physiologic basis.

But it is not in nervous diseases alone that critical analysis must be carried beyond the symptoms to the underlying focus of the disease. One of the leading orthopedists of America told me a few days ago of a severe case of arthritis which he had recently had in his practice. The patient had been bedridden for several months, unable to move, except with difficulty and much pain. The inflamed and stiffened state of the joints was obvious and seemed to call for local treatment. The physician, however, caused a thorough chemical and physical examination of the patient to be made, during which a roentgenogram revealed the presence of unsuspected local abscesses at the roots of several of the teeth. The removal of these affected teeth resulted in the prompt recovery of the patient from his joint disease. In the opinion of this physician every orthopedist ought to have at his command a competent physiologic chemist with a well-equipped laboratory.

Prof. J. Whitridge Williams, of Johns Hopkins University, in a recent address as president of the American Gynecological Society, severely criticized the members of that society for not taking a more prominent part in the advancement of obstetric knowledge, and he added that universities ought to equip and maintain women's clinics "liberally provided with laboratories for the anatomical, chemical, pathological and physiological investigation of gynecological and obstetrical problems." The staffs of hospitals should be increased to include, in addition to the always existing pathologist, a physiologist, a physiologic chemist, a pharmacologist and a bacteriologist, competent to observe human beings from their respective points of view. If this were done, not only could their rich stores of knowledge and experience be brought to the service of the clinician, but they in turn could have wider opportunities than their laboratories afford for the investigation of their problems and the broadening of their knowledge. Their work should by no means be restricted to experimentation on animals, but they should have abundant opportunities for the legitimate extension of their observations to human beings. "How helpful it would be," says Sir William Osler, "if clinicians had always at hand skilled physiologists, pathologists and chemists to apply their most advanced technic to clinical problems, and not the technic alone, but the biological and chemical principles upon which medicine as an exact natural science is founded." This could be made a powerful agency in drawing together the two divisions of medicine, now unfortunately far too divergent.

IMPORTANCE OF SCIENCE TO THE STUDENT

At the beginning of this address I spoke of the distinction that has come to exist in the medical curriculum between the medical sciences and the clinical subjects, and of the sharp break that occurs at the middle of the four years' course when the student drops his science and turns eagerly to the clinic and all that it is supposed to bring to him. Such a break ought never to be. One spirit, and only one, ought to permeate the undergraduate's four years, and that should be the spirit of untiring devotion to science, the master to whom all must pay their whole allegiance who wish to attain the best. Those who teach the medical sciences have not done their whole duty if they have not convinced their students that the sciences provide the key by which all that comes after may be unlocked; and the teachers of the clinical subjects have likewise failed if they do not hold to a rigid scientific ideal in their outlook over the details of practical medicine. Nor must this ideal be forgotten any the more during the two years of the hospital internship. After that the young doctor, sent forth on a world that is more or less skeptical of the efficiency of medicine and inclined to turn to fads and cults, must decide for himself what his course will be. He will find two paths open to him—the path of tradition and the path of progress. With the one his professional life will consist of a long succession of yesterdays, filled with the contemplation of what has been; with the other he will be ever reaching out for what to-morrow may yield. To him medicine may be either a trade or a profession. A man who is to follow a trade learns as an apprentice certain procedures, and thereafter it is his task to follow those procedures implicitly. The routine of a trade once learned is learned for a lifetime. It is possible to practice medicine in the same unintellectual way and to win what the world may call success. But there exists a higher type of physician. He it is who recognizes that his is a learned profession and who rises to the full dignity of it. Fortunate will be the life of that young man who feels irresistibly the call to the higher ideal.

GASTRO-INTESTINAL STUDIES

IV. DIRECT EVIDENCE OF THE SECRETION OF A GASTRIC JUICE OF CONSTANT ACID CONCENTRATION BY THE HUMAN SUBJECT

MARTIN E. REHFUSS, M.D.
AND
PHILIP B. HAWK, Ph.D.
PHILADELPHIA

The question of gastric acidity has received considerable attention in recent years. It has been demonstrated quite conclusively, for example, that the phrase "the normal gastric juice of man contains about 0.2 per cent. of hydrochloric acid" can no longer go unquestioned. On the basis of older experimental evidence a rather high acidity (from 0.5 to 0.6 per cent.) was accorded the gastric juice of such lower animals as the cat and dog, whereas man was found to remain content with an acidity in the vicinity of 0.2 per cent. More recent experiments,[1] however, indicate that the actual acidity of the gastric juice of man is very similar (from 0.4 to 0.5 per cent.) to the gastric juice of the cat and the dog.

Pawlow,[2] on the basis of experiments made principally by his colleague Ketscher, enunciated the belief that "the gastric juice as it flows from the glands possesses a constant acidity." Various observers have repeatedly demonstrated both clinically and experimentally that there are pronounced variations in the gastric acidity. These variations Pawlow would explain as due mainly to the varying lengths of time the juice was in contact with the alkaline mucosa of the stomach. In substantiation of this view, he brought experimental evidence to prove that the juice which was secreted rapidly possessed a higher acidity than juice which was secreted more slowly, the latter form of juice having been more thoroughly neutralized because of its longer or more thorough contact with the mucus of the mucosa. The theory of constant acidity received further support in certain of Pawlow's tests on fasting dogs equipped with the Pawlow pouch. When such animals were subjected to "sham feeding," the acidity of the gastric juice remained constant notwithstanding the fact that the chlorid content of the animal's body was very markedly deficient. "Sham feeding" finally failed to evoke any secretion of gastric juice; but so long as there was any output of juice, it was of constant acid concentration.

---

[1] Reports of these are given in the following:
Umber: Berl. klin. Wchnschr., 1905, xlii, 56.
Sommerfeld: Biochem. Ztschr., 1908, ix, 352.
Bickel: Deutsch. med. Wchnschr., 1906, xxxii, 1323.
Hornberg: Jahresb. ü. d. Fortschr. d. Tiersch., 1903, xxxiii, 547.
Rehfuss, M. E.; Bergeim, Olaf, and Hawk, P. B.: Gastro-Intestinal
Studies, I, The Question of the Residuum Found in the Empty
Stomach, The Journal A. M. A., July 4, 1914, p. 11.
Rehfuss, Bergeim, and Hawk: The Journal A. M. A., 1914, lxiii, 11.
Babkin: Die äussere Sekretion der Verdauungsdrüsen, Berlin, 1914,
p. 113.
Boldyreff: Quart. Jour. Exper. Phys., 1914, viii, 1.

[2] Pawlow: The Work of the Digestive Glands, translated by
Thompson, Ed. 2, p. 32.

Boldyreff[1] is the latest to assert a constant acidity for the human gastric juice. This investigator declares that the juice as poured out by the gastric glands has an acidity of about 5 per cent. This secretion of relatively high acidity is rapidly neutralized through the instrumentality of the regurgitated duodenal juices, the prime factor in the neutralization being the pancreatic juice. The "optimum" acidity is placed by Boldyreff at from 0.15 to 0.2 per cent., and the aim of the reflux of alkaline material into the intestine is to maintain the "optimum" acidity. If alkaline, neutral or faintly acid juices are introduced into the stomach, they are believed to excite an additional outpouring of the highly acid juice in order that the acid concentration of the stomach contents may be maintained at the "optimum."

In experiments on cats which had been subjected to the Pawlow pouch, Carlson, Orr and Brinkman[3] have recently demonstrated that "milk, whether ingested voluntarily or given forcibly, yields practically identical quantities and concentrations of gastric juice."

Wills and Hawk,[4] in a series of tests on the influence of water drinking with meals, demonstrated that the excretion of urinary ammonia was directly proportional to the volume of water ingested. They concluded that "the uniform relationship between water ingestion and the ammonia output might perhaps be considered as indicating that there was an attempt on the part of the gastric cells to maintain a uniform acid concentration."

Kersten[5] reports data which might be interpreted as demonstrating that the dog under some circumstances at least secretes for rather long periods a juice which is approximately constant in its acid concentration. The acidity values for a period of six hours after feeding 600 c.c. of milk are submitted in Table 1.

TABLE 1.—ACIDITY VALUES GIVEN BY KERSTEN

Hour	Hydrochloric Acid Per Cent.
First	0.49
Second	0.55
Third	0.55
Fourth	0.55
Fifth	0.48
Sixth	0.45

Certain experiments of Chighin[6] are also of interest in this connection. This author demonstrated that the introduction of 150 c.c. of water into the large stomach of a Pawlow dog evoked a secretion of 2.1 c.c. of gastric juice in the pouch, the juice containing 0.42 per cent. of hydrochloric acid, whereas when 500 c.c. of water were used a much more copious flow of juice, 7.2 c.c., was obtained, but its acidity was approximately the same (0.45 per cent.) as before.

Lönnqvist[7] has also reported data which may be interpreted as indicating, in some cases at least, that the juice as secreted from the Pawlow pouch, after the introduction of water and salt solution into the large stomach, is practically constant in acid concentration for periods of at least two hours or more.

Foster and Lambert,[8] on the basis of experiments made on Pawlow dogs, report data which indicate that the acidity of the juice is not constant, but varies from hour to hour. They assert that "early in the digestive period the content of chlorin in the juice is higher than toward the end of digestion." Among other data, they submit that given in Table 2.

TABLE 2.—ACIDITY VALUES GIVEN BY FOSTER AND LAMBERT

Hour	Hydrochloric Acid Per Cent.
First	0.56
Second	0.52
Third	0.44
Fourth	0.31
Fifth	0.22

Foster and Lambert say, "If the statement of Pawlow relative to the constancy of acid is correct, the gastric secretion would form an exception to present ideas of glandular activity."

EXPERIMENT AND COMMENT

In the course of the investigations on the gastric acidity which have been under way in this laboratory for some time, it was noted that there were many individuals, both normal and pathologic so far as the gastric function was concerned, whose gastric juice was rather constant in its acid concentration for considerable periods of time. The data from these cases are submitted at this time as evidence favoring the contention of Pawlow which we have already mentioned. The samples of juice were removed for analysis by means of the Rehfuss tube,[9] which has been used in the investigations previously reported from this laboratory.[10] The following cases have been selected inasmuch as they demonstrate forcibly the tendency of the gastric secretion, after it reaches a certain equilibrium, to be poured out in a more or less constant acid concentration. In the beginning of the curve other forces come into play: (1) the passage of the material through the alkaline mucosa; (2) the union of the alkaline pyloric secretion with the acid fundal secretion; (3) the fixation or neutralization of the acid by the ingested material, and (4) probably the decreased velocity of the formation of the acid and the consequent greater neutralization by the mucosa. When all forces affording a stimulus to secretion are at work this affords a complete evacuation of the glands and a more representative secretion. The curve naturally drops toward the end of digestion, owing (1) to the lack of continued stimuli and (2) possibly to the formation of certain inhibitory or secretory moderator substances such as peptone. It can therefore be understood that during the process of digestion more or less fixation of available acid occurs, giving us a curve which we naturally encounter in normal cases. In the absence of this factor or in the presence of an excessive secretion, the outpouring of juice is of surprisingly constant acid concentration, and, in the absence of some substances which are capable of combining with the acid, remarkably constant in its physical and chemical characteristics. This is particularly marked in the so-called "continued secretion" which we have indicated as following certain types of digestive curves and in the hypersecretion which is encountered. The irregularities in the beginning of the curve and particularly the psychic phase can be explained on the basis of the irregular stimuli which enter into play at that particular moment.

---

[3] Carlson, Orr and Brinkman: Am. Jour. Physiol., 1914, xxxiii, 86.

[4] Wills and Hawk: Jour. Am. Chem. Soc., 1914, xxxvi, 158.

[5] Kersten: Inaug. Diss., St. Petersburg, 1902.

[6] Chighin: Inaug. Diss., St. Petersburg, 1894.

[7] Lonnqvist: Skand. Arch. Physiol., 1906, xviii, 223.

[8] Foster and Lambert: Jour. Exper. Med., 1908, x, 820.

[9] Rehfuss: Am. Jour. Med. Sc., June, 1914.

[10] Rehfuss, M. E.; Bergeim, Olaf, and Hawk, P. B.: Gastro-Intestinal Studies, I, The Question of the Residuum Found in the Empty Stomach, THE JOURNAL A. M. A., July 4, 1914, p. 11; II. The Fractional Study of Gastric Digestion with a Description of Normal and Pathologic Curves, ibid., Sept. 12, 1914, p. 909. Bergeim, Rehfuss and Hawk: Jour. Biol. Chem., 1914, xix, No. 3.

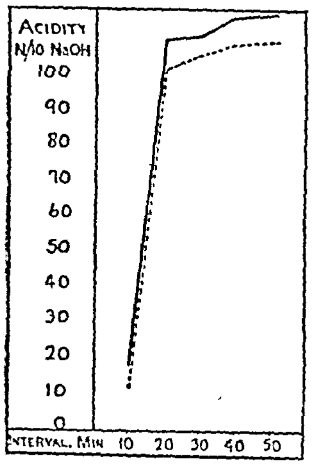


Chart 1.—L., after the administration of 500 c.c. tap water. Solid line, total acidity; broken line, free acid.

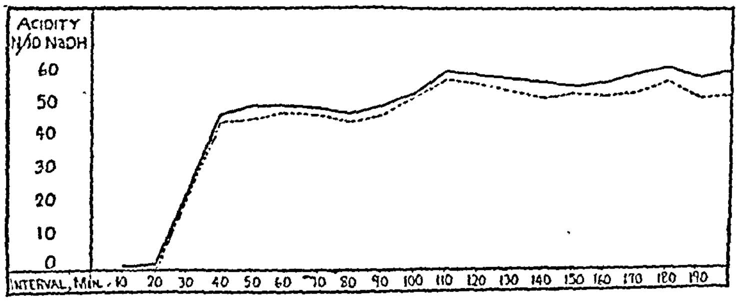


Chart 2.—H., "continued" secretion after the administration of 50 c.c. water at 50 C. Solid line, total acidity; broken line, free hydrochloric acid.

We believe that this constant acidity or the "average" acidity with slight variations in health is always to be found within certain limits, but may be in the absence of combining or neutralizing substances of comparatively high concentration. In disease every variation is encountered which must be interpreted by a thorough study of all the phenomena attending the outpouring of the secretion.

The following experiments are reported in detail because as far as we know they constitute the first evidence (direct) of the outpouring in the human subject of a secretion of constant acid concentration:

Experiment 1.—In a young student, aged 28, an excessive meat eater who smokes cigarets excessively, the figures given in Table 3 were obtained on the empty stomach in response to the introduction of 500 c.c. of cool tap-water.[11] Besides indicating the rapid exit of water from the stomach, the figures show that the character of the juice was remarkably constant in its acid content and that the outpouring of the liquid was unchanged until the termination of the test (Chart 1).

Experiment 2.—In an experiment on Mr. H., a person to all intents and purposes in perfectly normal health, there was an extraordinary continued secretion which lasted for several hours in response to the administration of 50 c.c. of distilled water at 50 C. (122 F.).[11]

TABLE 3.—FINDINGS IN EXPERIMENT 1

No.	Time, Minutes	Total Acidity	Free Acid
1	10	19.0	16.5
2	20	111.5	103.0
3	30	112.5	107.5
4	40	118.5	110.0
5	50	119.5	111.5

TABLE 4.—FINDINGS IN EXPERIMENT 2

No.	Time, Minutes	Total Acidity	Free Acid
1	10	1.5	0.
2	20	2.0	0.
3	30	23.0	21.0
4	40	47.0	45.0
5	50	50.5	46.0
6	60	50.0	48.0
7	70	49.0	47.0
8	80	47.5	45.5
9	90	49.5	47.0
10	100	54.5	53.0
11	110	61.5	58.5
12	120	59.0	57.0
13	140	57.0	52.5
14	150	56.0	54.5
15	160	57.0	53.5
16	170	60.0	54.5
17	180	62.5	58.0
18	190	59.0	53.5
19	200	61.0	53.5

The curve (Chart 2) shows a remarkable constancy with slight rhythmic fluctuations within very narrow limits. Many similar curves were obtained in normal individuals under the influence of varying stimuli, all of which tend to reach a certain level and then fluctuate within very narrow limits.

Experiment 3.—A medical student (Mr. F.) who smokes excessively has never been troubled with any gastro-intestinal disturbance. Lavage of the stomach was followed by the administration of 100 c.c. of water.[11]

TABLE 5.—FINDINGS IN EXPERIMENT 3

No.	Time, Minutes	Total Acidity	Free Acid
1	10	22.5	20.0
2	20	33.5	31.5
3	30	45.5	44.0
4	40	72.0	66.5
5	50	82.0	69.0
6	60	106.5	87.0
7	110	87.5	82.0
8	120	83.5	77.0
9	130	86.0	80.5
10	140	88.5	83.5
11	150	78.0	76.0
12	160	90.5	86.0
13	210	84.0	75.0
14	220	83.0	75.0
15	230	87.0	82.0
16	240	97.0	87.0
17	250	98.5	92.0

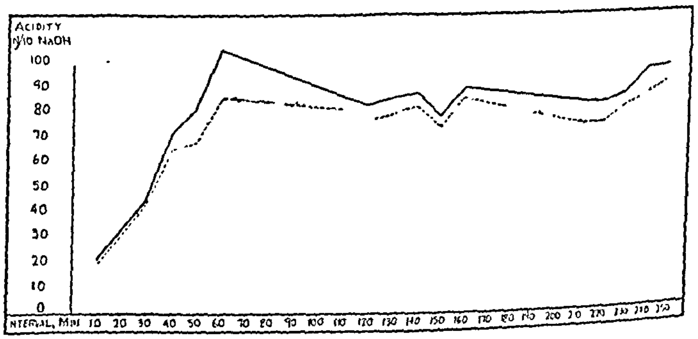


Chart 3.—F., 100 c.c. water after lavage. "Continued" secretion, four hours and ten minutes in duration. Solid line, total acidity; broken line, free hydrochloric acid.

The curve (Chart 3) likewise emphasizes the tendency toward a secretion of constant acid concentration. We have many curves similar to this, indicating that normally after the secretion is fully established, it has a strong tendency to become constant.

---

[11] Bergeim, Rehfuss and Hawk: Jour. Biol. Chem., to be published.

From these frankly normal cases, at least normal inasmuch as they were free from all evidence of gastro-intestinal disturbances, let us turn to several which are distinctly pathologic, mostly recruited from the medical wards of the Jefferson Hospital.

EXPERIMENT 4.—Mrs. I. was given an Ewald meal. A study of the curve in Chart 4 shows first that there was slow response with the rather tardy appearance of a secretion of comparatively low acidity. After reaching this point, with slight fluctuations, it remained at that level and within two and one-half hours there was still an appreciable amount of material in the stomach, although further examination revealed nothing. Cytologic examination was likewise negative; no mucus, no occult blood, only impairment of motility which together with the physical examination and the history justified the diagnosis of atony.

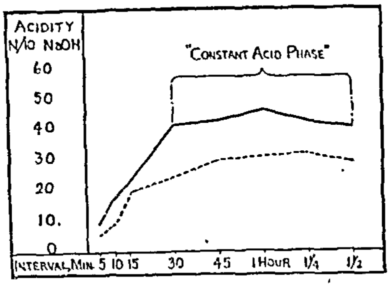


Chart 4.—Mrs. I., Ewald meal. Atony. Solid line, total acidity; broken line, free hydrochloric acid.

EXPERIMENT 5.—The condition of the patient, Miss F., was diagnosed as general visceroptosis, movable right kidney, upper intestinal catarrh and spastic constipation, the whole a part of the typical Stiller syndrome with rather pronounced vagotonic symptoms. Clinically the most pronounced symptoms were those due to atony, the discomfort and eructations following the ingestion of food being due to atony and being completely relieved by measures directed toward that end.

At two and three-quarters hours there was still an appreciable amount of material in the stomach, but examination of various samples, as in the previous case, failed to elicit the slightest sign of inflammation, neoplasm or ulceration.

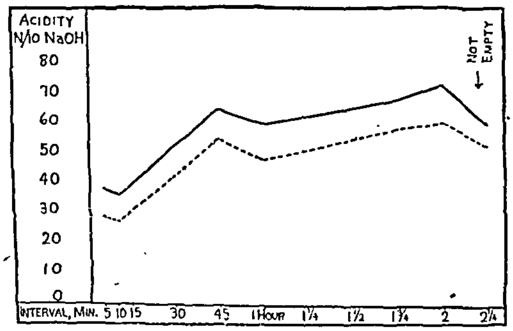


Chart 5.—Miss F., Ewald meal. Vagotonia; gastroptosis; atony. Solid line, total acidity; broken line, free hydrochloric acid.

TABLE 6.—FINDINGS IN EXPERIMENT 4

No.	Time, Minutes	Total Acidity	Free Acid
1	5	10.5	6.0
2	10	19.5	10.5
3	15	23.0	20.3
4	30	42.0	25.5
5	45	43.5	30.0
6	60	47.0	...
7	75	43.0	32.0
8	90	41.0	29.0
9	150	Still considerable food and juice in the stomach, although no marked retention.	

TABLE 7.—FINDINGS IN EXPERIMENT 5

No.	Time, Minutes	Total Acidity	Free Acid
1	5	38.5	29.0
2	10	37.0	28.5
3	30	53.0	43.5
4	45	66.5	56.5
5	60	61.0	49.0
6	75	63.0	52.5
7	90	66.5	...
8	105	69.5	59.5
9	120	74.0	61.5
10	135	60.5	53.5

EXPERIMENT 6.—This is a definitely pathologic case which illustrates a number of points regarding this study. The individual in question was given an Ewald meal on the empty stomach and the figures given in Table 8 obtained.

TABLE 8.—FINDINGS IN EXPERIMENT 6

No.	Time, Minutes	Total Acidity	Free Acid
1	5	31.8	...
2	10	41.4	...
3	30	30.2	18.0
4	45	30.2	20.0
5	60	35.8	23.3
6	75	38.0	26.7
7	90	43.5	30.0
8	100	43.0	30.3
9	105	51.2	38.8
10	120	50.5	38.0

At this point, the patient began to complain of pain and gnawing, and the figures showed a distinct rise in acidity as follows:

11	135	56.3	44.5
12	150	63.3	52.7

From this point on at 2¾ hours the stomach was empty after a distinct delay, but there followed a pure hypersecretion with average figures of

13	...	76.3	69.8

Careful study of the curve in Chart 6 shows that it is full of interesting data. In the first place the initial figures are high, in fact almost as high as the figures which follow, which average around 40. The high initial figure indicates, what a glance at the specimens shows, that the administration of the meal had been preceded by hypersecretion. The patient therefore had a fasting hypersecretion, which was confirmed by examination of the empty stomach. Then the digestive cycle commences with an outpouring of juice, which is comparatively constant for several hours during which there is no subjective complaint. Although there is a slight rise at one and three-quarters hours, the patient feels comfortable until the two and one-quarter hour interval, when he complains of distinct gnawing and griping. At the same time, it is evident that the stomach is empty and two things are occurring: an outpouring of pure juice which is unsaturated by food, and an increase in the acid concentration of the juice which is being propelled into the duodenum. At intervals he called attention to the cramp-like character of the pain, namely, pylorospasm. This is frequently seen in these cases and indicates the value of this method of examination. It enables us to record graphically the exact changes which are occurring in the stomach at any particular moment, and by the character of digestion record the particular phase in the digestive cycle in which the change is occurring. The pouring of digestive products of the latter part of the meal into the duodenum has given rise, either reflexly or through the action of hormones, to the outpouring of a juice which

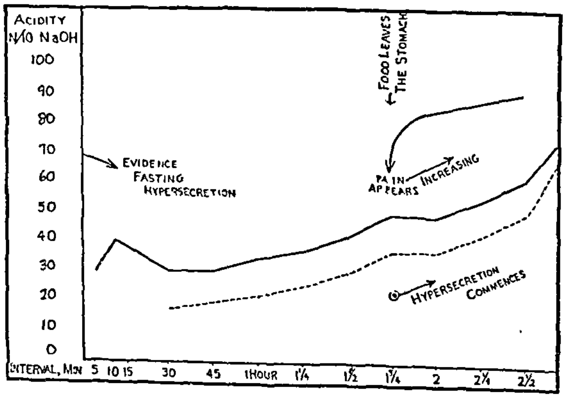


Chart 6.—N., duodenal ulcer, confirmed by operation. Solid line, total acidity; broken line, free hydrochloric acid.

apparently is not of the same character as that observed through the digestive phase, and therefore pathologic for the individual. Another point of interest was found in this case. The examination of the empty stomach revealed a twelve-hour retention (peas, the remains of green vegetables) and the specimens at one and one-half, one and three-quarters and two hours showed definite amounts of free fat. The diagnosis of a stenosing ulcer of the duodenum was made, and an operation was subsequently performed which demonstrated the correctness of the diagnosis.

Experiment 7.—The patient, Miss K. G., complained for several years of severe pain after eating, and on the supposition that an ulcer was present, operation was performed and no ulcer was found. The operation failed completely to relieve her and she continued to complain of the same type of pain with occasional attacks of hyperacidity. The pain was particularly pronounced after she had a bowel movement or anything which decreased intra-abdominal tension and permitted the stomach to sag. The history of this case was more or less typical of ulcer, although the last symptom, as one clinician pointed out, was very suggestive of adhesions. This was substantiated by the intermittent character of the pain often independent of meals. There was, however, sharp pain shortly after the ingestion of food. Accordingly an examination was made of the empty stomach, which showed absolutely no retention but a large very liquid residuum, a fasting hypersecretion. An Ewald meal was then given. The results obtained by fractional examination are recorded in Table 9.

TABLE 9.—FINDINGS IN EXPERIMENT 7

No.	Time, Minutes	Total Acidity	Free Acid
1	20	40.7	18.5
2	30	47.0	....
3	45	50.3	25.6
4	60	48.2	25.9
5	75	43.5	25.0
6	90	42.7	24.3
7	105	44.9	25.7
8	120	48.4	28.5

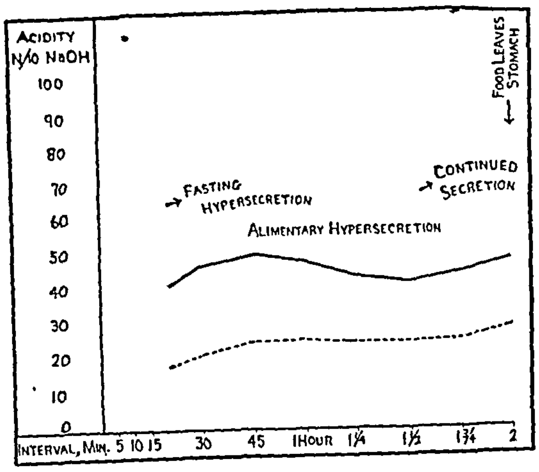


Chart 7.—Miss G., gastric adhesions, confirmed by operation. Notice continued high acidity. Solid line, total acidity; broken line, free hydrochloric acid.

Digestion was over in normal time, and there were no retention, no mucus, no bacteria, no occult blood, in fact nothing unusual about the specimens except the alimentary and continued hypersecretion, there being an exaggerated quantity of juice poured out in every phase of digestion. One point is significant: The gastric curve (Chart 7) is almost a straight line, there being no rise from the abscissa, and with the exception of the first figure, which is but slightly lower than the others owing to temporary saturation by food, the juice is practically of constant acid concentration. This curve is always pathologic and never seen in normal cases. In this case, examination of the stools, cytologic examination of the gastric contents and a study of the albumin content were all against the possibility of ulcer. We could find nothing in the curve or the specimens to suggest ulcer except the obvious hypersecretion suggestive of irritation. Roentgen findings indicated a spastic hour-glass contraction with ulcer on the lesser curvature. We would willingly believe this, but the spastic hour glass should also be accompanied by pylorospasm and delayed motility, particularly with gastric ulcer, evidence of which we could not find. In summing up our conclusions, we suggested ulcer, pylorospasm, possibly a fissure of the pylorus, but in all probability adhesions. Operation was subsequently performed and the only finding was adhesions, causing a transverse constriction of the organ. This case served to intensify the feeling that negative cytologic, chemical and occult blood findings in the presence of hyperacidity and hypersecretion indicate usually an extrinsic cause. The case shows well the pouring out of juice of a constant acid concentration.

Lack of space prevents us from enumerating a number of cases which we have collected after the administration of various stimuli, the Ewald meal, water, etc., which seem to indicate that after the phenomena of initial neutralization and fixation, there is apparently an equilibrium in the factors which bring about the production of acid, and the juice is very constant in its acid concentration. This is particularly the case in hypersecretion and in the normal "continued" secretion cases in which in the absence of substances which are capable of neutralizing the acidity is often remarkably constant. This is particularly the case in the second or chemical phase of the gastric cycle in contradistinction to the initial or psychic phase, which may be more erratic.

CONCLUSIONS

1. By means of the fractional method, we have been able to demonstrate directly evidence of the secretion of a gastric juice of constant acidity in the human stomach.

2. This has been demonstrated in a large number of cases both normal and pathologic.

3. The low acid figures obtained at the beginning of the ordinary curve are explained by: (*a*) the lessened velocity in the formation of acid during the beginning of digestion (Pawlow); (*b*) the partial neutralization of the newly formed acid by the mucosa (Pawlow), and (*c*) the neutralization and fixation of the acid by the proteins of the bread. The lessening in acid figures toward the end of digestion is probably explained in those cases in which that phenomenon occurs and to (*a*) the lessened acid formation incident to the accumulation of inhibitory and sedative substances which tend to lessen acid formation, together with (*b*) a partial neutralization by the food of the acid already formed.

4. A clear exposition of constant acidity is best seen in those cases of "continued" secretion which we have pointed out in normal individuals and in many cases of hypersecretion in which, in the absence of definite material on which acid fixation or neutralization can occur, the acidity remains constant over long periods of time.

5. Pathologic deviations in this "constant" acidity can be noted and are often accompanied by subjective symptoms.

6. This is the first direct demonstration in the human subject in favor of Pawlow's theory of the secretion of a juice of constant acid concentration.

We wish to thank Dr. Olaf Bergeim and Prof. C. C. Fowler for assistance rendered.

Interdependence of Rural and City Health.—Disease is communal. The health of the city is dependent upon the health of the country. A large part of the disease in the cities is brought in from the country.—William De Kleine, in *Pulbic Health*, published by Michigan State Board of Health.

THE PREVALENCE OF OCCUPATIONAL FACTORS IN DISEASE, AND SUGGESTIONS FOR THEIR ELIMINATION *

E. R. HAYHURST, A.M., M.D.
Director, Division of Occupational Diseases, Ohio State Board of Health
COLUMBUS, OHIO

The purpose of this paper is, first, to point out the socially wasteful practice of administering daily to person after person for the same types of morbidity, due to the same causes, and, secondly, to emphasize a much neglected sphere of etiology, the proper conception of which is contained in the term "industrial relations."

The research summarizes a study of (1) U. S. Census Mortality Statistics of Occupations; (2) 65,000 dispensary records and many hundreds of cases personally seen during a two-year period at Rush Medical College (Central Free Dispensary); and (3) the medical portion of 27,887 cases in which the patients received treatment in Cook County Hospital during the year 1913.

1. Attention is first directed to an arrangement of mortality statistics somewhat different from forms customarily shown. An analysis of the mortality statistics of 210,507 persons engaged in 140 occupations in the registration area of the United States exhibits the percentages for the census year 1909 (the only year in which complete tables were published), given in Table 1.

TABLE 1.—MORTALITY AMONG OCCUPIED MALES*

	Those in Agricultural Pursuits. Percentage of All Deaths	Those in 131 Trades and Callings. Percentage of All Deaths
Deaths from *preventable* causes (6/7 are diseases)†	27.4	43.0
Deaths from *degenerative* diseases (under 70 years of age)‡	26.5	31.2
Total deaths after 70 years of age	35.9	13.4

* "Occupied males" include professional callings, officials and proprietors, those engaged in domestic and personal services as well as *those we ordinarily term real workers, namely, those* in trade and transportation, manufacturing and mechanical pursuits, miners, quarrymen, etc., composing a total of 140 chief occupations—including those engaged in nine agricultural pursuits.

† "Deaths from preventable causes" include typhoid fever, pulmonary tuberculosis, pneumonia (under 70 years), alcohol, lead poisoning, other occupational poisonings, suicide, accidental poisonings, accidents and injuries, rheumatism, bronchitis, pleurisy and hernia—for the last four, only such deaths as have occurred under 70 years are included.

‡ "Deaths from degenerative diseases" include cancer, diabetes, apoplexy, heart disease, "other circulatory diseases" (4,858) asthma, cirrhosis of the liver, "other liver diseases" (880), and Bright's disease. There remain in the census classification 27,105 deaths from peritonitis, appendicitis, "other respiratory, digestive, nervous" and "all other causes," a large percentage of which were also undoubtedly preventable or prematurely degenerative, but which are not taken into consideration in the classification given above.

From this we see a marked difference in the prevalence of certain wasteful death causes between the two classes compared. We also note that the agriculturist stands a one-in-three chance of reaching old age (70 years), while the others' probability is but little better than one in eight. None can fail to grasp the significance of this table. To disclaim the importance of these figures on the basis of incorrect diagnoses and uncertainty of occupations is unjust. The fact that only the registration area is included, and the recency of the reports answer the first point. As to the second feature. Wilbur[1] has shown that where another or previous occupation could have been a factor, it amounts to less than 1 per cent., which is less than ordinary errors of transcription.

2. Before proceeding farther it is necessary to explain one or two terms. *Industrial health-hazards* may be defined as working conditions which, while they may not impair the more resistant worker until after a prolonged period, produce morbid conditions in the average worker, and tend ultimately to create preventable and degenerative diseases in all persons so subjected. The hazards, arranged schematically in order the better to remember them, are (1) dust, (2) dampness, (3) darkness, (4) devitalized air, including motionless and vitiated air, (5) heat, (6) cold, (7) fatigue, (8) inactivity, (9) compressed air, (10) infections, (11) poisons and (12) industrial *stimulantism*—the latter a common condition created by the belief among many workers that alcohol, strong coffee, etc., limit or counteract the effects of dust, poisons and other hazards; it is also promoted by dirty, disordered and depressing surroundings and the absence of proper thirst-assuaging facilities at the workplace. It is understood that each of the above-named hazards stands for a class of component hazards.[2]

Among 65,000 different applicants at Rush Medical College (Central Free Dispensary) there were 15,475 persons with definite trades. Professional persons, laborers, housewives and nondescripts were excluded in summarizing. Of this number 10,370 had afflictions deemed not occupational or controversially so, and were also excluded; such were venereal, surgical and acute infectious diseases; sexual, senile and certain skin, ocular (including refractive errors), ear, nose, throat and some nervous diseases. Certain trade tendencies could be noted in many of these; a good part of the surgical cases were strictly occupational. The balance, or 5,105 tradespersons, or about one-third the total number of tradespersons, worked at occupations having definite health-hazards, and had afflictions which such hazards were producing and definitely promoting. Such circumstances would render them applicants for industrial compensation for occupational diseases according to many foreign provisions[3]—"the diseases (scheduled) shall be deemed to have been due to the nature of that employment unless the contrary is proved"—the burden of proof lying on the employer, who has to show that the worker has not been subjected to work hazards which could produce the disease in question.

Among 2,500 consecutive applicants at the Central Free Dispensary Branch of the Chicago Tuberculosis Institute were 875 tradespersons engaged in occupations surrounded with definite and well-known health-hazards. Of this number 615 were found to be tuberculous, 125 were not positively diagnosed and the balance were not suffering from tuberculosis. Of 368 patients who were intelligent and answered questions,

---

* Results of a study conducted at the Central Free Dispensary (Rush Medical College) and Cook County Hospital, Chicago, under the Occupational Disease Fellowship of the Otho S. A. Sprague Institute for Infectious Diseases.

[1] Wilbur, Cressy L.: "Vital Statistics in the United States," Am. Jour. Pub. Health, December, 1913, p. 1258.

[2] The Ohio State Board of Health, in the survey of industrial hygiene and occupational diseases which it is now conducting, uses, for workplace investigations, a card 4½x7 in. on which is logically arranged a *complete list* of the usual health-hazards of industry. By a simple code each is opinionated as "good," "fair" or "bad," as inspection reveals.

[3] See "Compensation for Industrial Diseases," by E. T. H. Lawes, 1909, Stevens and Sons, London, 306 pp. Also, "Order Extending the Workmen's Compensation Act," Great Britain and Ireland, Bull. Int. Labour Office, 1914, ix, Nos. 1, 2, pp. 23-24. Also, "Compensation for Occupational Diseases," Ontario, Canada, U. S. P. H. Reports, Aug. 21, 1914, xxix, No. 34, p. 2176.

259 made complaints of working conditions involving dust, light, dampness and ventilation. Their statements were not taken as to the more insidious hazards such as poisons, fatigue effects, liability to communicable diseases, temperature exposures, and industrial alcoholism.

3. In Cook County Hospital in the year 1913 there were 11,022 adult medical cases. Of this number, at least 2,866, or about 27 per cent., were persons engaged in definite trades having well-known health-hazards and were suffering with afflictions which were induced or promoted by such hazards. None of these, so far as we know, received compensation or even condolence from the sources responsible, nor, indeed, were their cases investigated by an executive branch of the government.[4]

It might be considered advisable to give a division of all of these 11,022 persons by "occupations" and by diseases. This was attempted, but it suffices to say that a large majority of this class of "down and out" patients have no regular occupations, and that, also, the term "occupation" as used in a charitable institution of this sort is capable of such loose construction that, unless each case is painstakingly examined, records and casual statements more often mislead than direct. The term "laborer," for instance, was found to apply to practically all occupations.

In the hospital diagnoses of these 11,022 medical cases, one finds none classified under the head of "occupational," or "industrial" diseases. Turning next, however, to the prominent poisons, and running them through, the records disclose cases charged to industry as given in Table 2.

TABLE 2.—CASES OF POISONING CHARGED TO INDUSTRY

	No. of Patients
Lead poisoning	47
Arsenic poisoning	3
Wood alcohol poisoning	1

But if such a search is extended to *diseases which might be occupational,* such as dermatitis, eczema, bronchitis, tuberculosis, heat-exhaustion, tetanus, flatfoot, lumbago, rheumatism, constipation, gastritis, pancreatitis, appendicitis, nephritis, neuritis, and particularly neurasthenia, one finds many comments on the history sheets savoring of occupational etiology. In fact, after such a search one comes to the conclusion that almost any medical complaint may be occupational, or at least may have in its etiology an important occupational factor.

As limited in number as are the *lead poisoning cases* noted, they are more frequent in occurrence than in the year 1910 in the same hospital. In spite of all legislation which followed the report of the investigation by the Illinois Commission on Occupational Diseases in the year 1910, they have still continued to come[5] and in several instances from the same identical workplaces.

An analysis of the principal symptoms given on the history records and used for arriving at a diagnosis in the cases of plumbism is given in Table 3. It is based on forty-six of the cases, as one patient absconded from the hospital before clinical features could be determined.

TABLE 3.—PRINCIPAL SYMPTOMS IN FORTY-SIX CASES O PLUMBISM

	Per Cent.		Per Cent
Colic	98	Basophilic degeneration	4
Constipation	91	Headache	42
Lead line	80	Albumin and casts	2
Vomiting	78	Multiple neuritis	27
High blood-pressure*	75	Wrist drop†	1

* Determined in only 16 cases. In no case was it less than 125 mm. Hg, but in 12 cases it was more than 100 plus the age in years.

† The detection of lead paresis, preceding paralysis, can be made early, in the case of the arms, by the use of the hand dynamometer (Hayhurst, E. R.: Critical Examination of One Hundred Painters for Evidences of Lead Poisoning, Am. Jour. Med. Sc., 1914, cxlvii, 788).

The high percentage of lead lines shows quite conclusively that many cases without lead lines were not diagnosed as plumbism, since this sign is certainly not present in over one-third of even acute cases. Most lead workers are instructed and have learned to take "salts" regularly and as a result do not suffer much from colic, constipation, vomiting and headache, but they do suffer nevertheless from chronic plumbism as is shown by weakened neuromuscular function, blood-pressure determinations, facial pallor, impaired nutrition, affected kidneys, hardened arteries and fundus oculi examinations.

Analyses show that a total of 530 patients were engaged in processes which exposed them to lead in its various forms. As mentioned above, but forty-seven patients were industrially poisoned in the scrutiny of the histories of these cases. Among the balance we cite below the details of ten selected cases. Space alone limits the publishing of many times this number. I do not question the diagnoses made, necessarily, but wish to comment on their incompleteness. (The hospital diagnosis is given first, with civil statistics, and some of the symptoms; then the results, in briefest form, of our own investigations in connection with each case.)

Case 1.—*Aortic Aneurysm.*—Laborer, aged 52, U. S., signs of aneurysm, with symptoms of angina pectoris. Symptoms beginning four months previously. Found to have worked for the past three years in a lead factory, inordinately exposed to lead. This case ended fatally, presumably by rupture of the aneurysm. Four and one-half months in the hospital.

Case 2.—*Alcoholic Neuritis and Nephritis.*—Painter (general), aged 40, U. S. Found to have had an attack of acute plumbism two months before, with wrist-drop. Had his first attack twelve years before.

Case 3.—*Musculospiral Paralysis and Multiple Neuritis.*—Laborer, aged 32, Pole, double wrist-drop, blue line, basophilic degeneration. Found to be a lead worker. Later sued his employers for his condition. How much the hospital diagnosis will help or hinder his suit is left to the reader to conjecture.

Case 4.—*Arteriosclerosis.*—Painter (general), aged 54, U. S. History of several lead-poisoning attacks and in the hospital but a few months before for "lumbago."

Case 5.—*Constipation.*—"Iron molder"—such was his regular trade, but he worked in a paint factory for one week, putting paint in cans—aged 38, Pole; symptoms acute. Stated that the work-room was filled with dry paint dust, and that masks were "more or less" constantly worn.

Case 6.—*Pus Appendix,* gangrenous (diagnosis made by abdominal section). Russian, aged 31. Within the past year a farmer in Russia. Sick for past four months. Found to be a white lead molder, and made great complaint of the amount of lead fumes and dust he was compelled to breathe. Place of employment the same from which four other cases of lead poisoning had come to this one hospital within the period of our observations.

Case 7.—*Chronic Rheumatism and Acute Uremia.* Painter (general), aged 60, Irish. Sick for past two months. Entered hospital in semicomatose condition with convulsions. Found to have had lead colic as far back as twenty years previous.

---

[4] In this connection we may say that the powers of the state factory inspection department, limited as they are to the reports of factory physicians only and then to a certain few *poisonous* industries, do not permit of aggressive investigations of this sort.

[5] See Bull. Ill. State Depart. of Fact. Inspect., October, 1913, and April, 1914, i, 1 and 2.

Case 8.—*Catarrhal Jaundice.*—Laborer, aged 28, Greek. Sick twenty-one days—colic. Found to be a lead smelterer, and from the same place where several other positive cases of lead poisoning occurred, several of the patients entering this hospital within the past year. The firm is an old offender.

Case 9.—*Neurasthenia.*—Painter, aged 42, Hungarian. Complaint, abdominal pain. Had similar attacks off and on for the past four years. Found to be a passenger car painter, and complained of breathing paint dust. There have been many cases of lead poisoning reported, both at this hospital and elsewhere, among his fellow workers.

Case 10.—*Paratyphoid Fever.*—Battery assembler, aged 23, Lithuanian; abdominal colic; blue line. Found to work in a storage battery factory exposed to much lead dust. Also had all symptoms of lead colic eight months previous.

This series illustrates how easy it is for primarily occupationally diseased patients to be lost sight of in terminal complications; the necessity of going deeply into the exact occupational risks which the patient has endured, and the lack of significance of the term "laborer." Furthermore, these cases emphasize very well the social waste in continuing to treat, and failing to diagnose etiologically cases which keep coming from the same sources, trades and callings year after year.

Industrial *arsenic* poisoning is not frequent in Chicago, yet the three cases noted above were hardly one-fourth of the total in this one hospital; another ten cases (all acute), which we could discover, were termed "dermatitis," "eczema" and "acute gastritis." In this connection it is well to state that in several instances these patients gave their previous regular occupations, such as "boilermaker," "electrician" and "jeweler," instead of mentioning their recent arsenic-industry employment, when questioned by the hospital entry clerks.

The three diseases given in Table 4 were correlated with occupations of the patients; the figures give the numbers which were in whole or in part occupational in character.

TABLE 4.—OCCUPATIONAL CASES IN THREE DISEASES

	No. of Patients
Chronic nephritis	265
Rheumatism (various forms)	417
Organic heart disease	333

In the case of the latter disease it is well to mention the efforts now being made in New York and at Cincinnati to select proper forms of work for such patients after discharge, in order to prevent occurrence and recurrence of non-compensation and consequent return to hospitals.

No cases were recorded of *pneumonoconiosis,* or of its various forms, as *siderosis, chalicosis, aluminosis,* etc., although there were a total of 134 cases of *chronic bronchitis* without efforts at etiologic diagnosis.

There were recorded 229 cases of *arteriosclerosis.* Unfortunately an idea of the extent to which fatigue-substances, heat-toxins and extrinsic poisons of industrial origin may have entered into this class of cases can rarely be gained from present-day histories anywhere; hence any idea of using the information for shutting off the oncome of such cases is at once precluded. They are all charged apparently to the account of moral hazards, or disease misfortunes.

There were 156 cases of *neuritis* of various types. While the preponderance of alcoholism and drugging as causal may be admitted, each should be searched for the likelihood of industrial poisoning, both extrinsic and intrinsic. For example, multiple neuritis occurs at a given rate among all alcoholics, but among those exposed to lead it is unusually common. We did not find time to go into these.

There were 157 cases of *neurasthenia* for which no other cause could be found than exhaustion, and we know that every effort was made by diagnosticians to keep this number minimal. Why should not the cause of such exhaustion be inquired into with the idea of naming it etiologically, and, if industrial, as it probably is in 90 per cent. of the cases, of recording it as *occupational neurasthenia?* If each such case were looked at from this point of view, corrective agencies would have a case to investigate.

There were twenty-eight cases of pes planus, fifteen cases of tetanus, and numerous cases of skin disease, heat exhaustion, neuralgia, uremia, etc. Here and there was a mention of work etiology, but the mention was productive of nothing. In fact, it was lost sight of entirely through the absence of a heading in the filing system under which to place "occupational complaints." It is largely on this account that so few occupational diseases can be found in institutional records anywhere (they are nearly all alike in this respect) when one intuitively feels they are omnipresent, especially if any field work has been done in industrial health-hazards.[6]

During the course of the year 1913, there were in the hospital *2,230 adult cases of tuberculosis* (I understand that not over 50 of these were "repeats"), 1,800 males and 430 females. One may safely say that practically none of these had active tuberculosis at the age of 14 years! The question is, Why and how have they acquired it since? How many of them would have it now had they lived an agrarian existence, for instance? The predisposing causes of their tuberculosis may be placed under three heads: (1) moral hazards, (2) domestic or housing hazards, and (3) industrial hazards. These three factors operating, perhaps, in unison have caused either a reawakening of latent childhood infection, or have invited environmental infection. Without disregarding the importance of the first two hazards, I am of the opinion that the importance of industrial hazards has been greatly underestimated in almost every case, and that it is useless to fight tuberculosis unless the daily eight to twelve hours vocation be investigated and supervised. The so-called "occupations" under which these 2,230 tuberculous persons were registered give practically no information of value. For this, it would be necessary to individualize cases. The records show one thing which is certain, however—that *they keep coming,* and very largely *from the same environments.* One important analysis shows that there was a total of 672 medical patients in the hospital engaged in dusty trades, of whom 284, or 38 per cent., were tuberculous. This is almost double the general tuberculosis rate among the medical (adult) cases in the hospital (20.2 per cent.). For "laborers," as a class, the percentage of tuberculosis was 23.3 per cent.

A principal feature in all these cases is to determine exactly the occupations. The principal result should be an etiologic diagnosis as far as possible, including the use of qualifying terms such as "bronchitis, occupational," "neuritis, chiefly occupational,"

---

[6] Several excellent text-books have recently appeared on occupational diseases and industrial or vocational hygiene which discuss the various hazards of each calling.

"aortic aneurysm, probably occupational," "nephritis —alcoholic and lead," etc. This is similar to uses elsewhere, as seen in such descriptive terms as *puerperal* sepsis, *tuberculous* pneumonia, *typhoid* fever and diabetes *mellitus*.

It must not be forgotten that patients themselves are densely ignorant of what constitute health-hazards; that they calmly accept them as a matter of course, and unworthy of notice; that the competition for work is great; and (one comes to realize) so much greater than everything else is *the innate desire in man to work*—a desire which, in the normal man, equals his appetite and seeks to be satisfied in spite of all conditions.

SUGGESTIONS FOR THE SOLUTION OF THE PROBLEM OF OCCUPATIONAL DISEASES

The health-hazards of industry which cannot be feasibly removed are insignificant in number.[7] The best proof is the fact that certain establishments engaged in the industries and processes in question have circumvented such hazards, and invariably to the improvement of production, as well as labor attitude and relations.

1. First, there is needed a nomenclature to designate properly what is meant by "occupation." No one word will do this. The word "occupation" as used in medical parlance, hospitals, institutions, anti-tuberculosis society records, etc., should be abolished absolutely. A little study of some of the application blanks of insurance companies, particularly those carrying sickness insurance, offers many suggestions to framers of history sheets, social statistics, nurses' records, etc. After considerable study, and several years of field and statistical experience with this question, we have evolved and are using a scheme to take the place of the word "occupation" as outlined in Table 5.

TABLE 5.—SCHEME TO TAKE THE PLACE OF THE WORD "OCCUPATION"

INDUSTRIAL RELATIONS
(AS STATED BY THE PATIENT)

	Present	*Past*	*Previous (to Past)**
1. Name of employer			
2. Address of employer			
3. Business of employer			
4. Calendar years worked here..			
5. Department(s) worked in....			
6. Particular process(es) engaged in			
7. Health-hazards† exposed to...			

* For acute afflictions it is not necessary to go back beyond a few days or weeks, perhaps. For recurrent afflictions one should go back months or years. For chronic afflictions it is necessary to go back preferably five years or more. It is not to be expected that the busy entry clerk will fill out this record. It should be the duty of the history taker, oftentimes with the aid of an interpreter, and, if significant, even with outside assistance.

† Question "7" should be answered whenever there is any possible relationship between the patient's affliction and his industrial relations.

This is not dissimilar to what is ordinarily inquired into by the average insurance company. The question at once arises, Should not social and charitable institutions demand just as thorough an investigation of industrial relations as a sickness insurance company? Certainly the taxpayers of a community have a right to demand as much.

2. It is a serious handicap to many interests that there is to-day no logical classification of occupations in existence. To different persons the same term conveys quite dissimilar intelligence. With the information obtained from the use of the blank form given in Table 5, a *logical classification of occupations* may be attempted. While the names and addresses of employers are not necessary for the classification in question, they should be required on all institutional case-records as legitimate information pertinent to the care and supervision of the case. With the facts secured by Answers 3, 5 and 6, any given type of worker and all of his kind may be descriptively and distinctively classified. A scheme to classify occupations must collate "industry," "business department" and "trade process." It therefore requires three descriptive terms to do this. "Industry" must be considered, because, for example, a fireman at a zinc smelter-works is subject to considerably different hazards from those of a fireman in the boiler room of a public building; "business department," because, for example, a cook with a railway construction gang has considerably different hazards from those of a cook on a railway dining-car, etc. Let us apply this principle to a heterogeneous collection of workers (Table 6).

TABLE 6.—THE COMPLETE STATEMENT FOR "OCCUPATION"

Industry	*Business Dept.*	*Trade Process*
Pottery	Clay shop	Jiggerman
Pottery	Glaze room	*Dipper's helper*
Vehicle	Painting	Painter and sander
Agricultural implements	Painting	Dipping machine laborer
Iron and steel	Butt mill	Furnaceman
Brass	Foundry	Furnaceman
Iron foundry	Foundry	Laborer
General	Nondescript	Laborer

In this way it is possible to classify any one's trade or calling exactly. As in the case of "iron foundry," redundancies seemingly occur, but these are only apparent, for all the information obtained is necessary to exactly identify each worker's industrial application and environment.

It is not necessary for two persons to describe the terms exactly alike for a given case; nor, in the case of the same activities at two separate places, is it necessary to have descriptions identical, word for word. The information given under the three headings will invariably convey intelligence enough to enable a third person to comprehend fully just what is meant. The statistician is at liberty, furthermore, to enlarge the groups so as to come under the usual general industrial headings: agriculture, professional, personal service, trade and transportation, manufacturing and mechanical pursuits, and miscellaneous.

3. With the occupation definitely known and the health-hazards recorded, the weight of these in the affliction at hand can be estimated. The next step is to *investigate and verify* the patient's statements. Right here is where our system of social service fails. It is at present nobody's official business to attend to this. This function should constitute a part of the *statutory business of the community health department* whose findings, when positive, with recommendations and suggestions, should be given over to the proper (state) executive department. It should also become a corollary obligation on this health body to lead in the hygienic education of the workers, and to some extent of the employers, by drawing up rules and regulations to be observed by both of them and to be posted in workplaces as health-placards. This last function should not be hampered by having to wait for preparatory legislation aimed at each line of industry, as is now the usual manner of remedying such conditions. This power is just as much the rightful function of the health body as any of the offices

---

[7] See Symposium on Ventilation, Jour. Indust. and Eng. Chem., March, 1914.

it now performs. *This power should be legalized and made mandatory on the health body.*

4. The enforcement of such regulations should depend, in the end, on the *compensation principle,* by which the employer will soon undertake to supervise his own plant, quite independent of the state's enforcement, as well as the health of his workers, both in and beyond the workplace, the latter on the now accepted theory that the employer has a right to demand "his money value for his expenditure for labor." Physical supervision, medical examination of employees, and a better selection of workers for the job will be the first effects of this system, while workers whose sicknesses are the results of moral or domestic hazards will soon be educated into line, or eliminated from industry. As industrial relations usually determine home conditions and habits, it would appear rational at all times to make an attack on delinquent social conditions at the place of employment.

SUMMARY

As a result of considerable study of hospital and dispensary cases and records, of vital statistics, and of field investigations, we reach the following conclusions:

1. Occupied persons, other than agriculturists, suffer an enormous mortality (figures show 74 per cent.) from well-recognized preventable and prematurely degenerative diseases.

2. Occupational diseases exist because industrial health-hazards exist. Responsible employers do not realize the existence of either, while treating agencies take little cognizance of employments.

3. From one-fourth to one-third of the medical afflictions of tradespersons are due in whole, or in great part, to industrial health-hazards.

4. In institutions, the vast majority of industrial diseases are lost sight of through failure to recognize properly the industrial relations of the patients, to make etiologic diagnoses, and to classify properly in subsequent filing.

5. Specific occupational diseases, such as lead poisoning, are not recognized in more than one out of three or four instances, more especially the chronic cases.

6. Present-day institutional records are of value only in showing the enormous numbers of representatives of groups of industrial pursuits who are below the physiologic normal, and who seek medical aid for preventable ailments. Such records have little value to the student of economics.

7. A most important first remedy is a proper nomenclature for industrial relations to take the place of the word "occupation." Such a nomenclature is here propounded. The chief feature of this is the introduction of the term "industry-department-process" for the word "occupation." Adoption of this proposed term, furthermore, renders a logical classification of occupations possible. No such classification now exists.

8. The powers and functions of the community health-governing body should be extended to the prompt investigation of all industrial complaints, and to the prompt remedying of them without the necessity of preliminary legislation against certain alleged responsible industries.

9. In spite of the fact that the state in which this study was made has an occupational disease law, workers are still coming into its charitable institutions from the same types of trades, and in some instances, from the same manufacturing establishments, in even greater numbers than at a period three years previous, when the Illinois Commission on Occupational Diseases made its investigation. This, we charge, is most directly due to the non-existence of a correlating body between the hospital and the factory.

10. Too much importance is usually given to alcoholism, with a failure to appreciate that subjection to industrial health-hazards in itself induces and promotes stimulantism.

As a noted health officer has stated, many occupational afflictions might well be made the subject of a grand jury investigation, and others, of a coroner's inquest. The enormity of the public and private sums now spent on preventable sickness and death should induce those who pay the tax to bend every effort to run down these contributory factors and abolish them.

Acknowledgment is made of the valuable assistance rendered by Drs. Pauline R. Kapsa, C. A. Link, Alvin Thompson and F. B. Smith, of Chicago, in the accumulation of statistics and material contained herein.

CLINICAL CLASSIFICATION OF ETHMOIDITIS*

E. M. HOLMES, M.D.
BOSTON

As a result of the efforts of many observers during the past quarter of a century, we have acquired considerable knowledge concerning the inherent and associated pathology of the ethmoid cells. The clinical study of these cells is still of great importance, for by the knowledge thus obtained we are better able to judge of the macroscopic pathologic changes observed by direct inspection and by the aid of endoscopic instruments. Endoscopic examination of the nose enables us to inspect recesses which are otherwise hidden or at best only poorly observed. There is great need of study in this direction, for many of the findings are more positive than can be obtained in any other method. The roentgenogram is an aid which is of much service in some cases of ethmoid disease. It may give a working knowledge of the arrangement and size of the individual cells and it may be of considerable help in demonstrating the coexistence or the absence of associate sinus disease. We have also made considerable progress in our ability through surgical and medical means to relieve local pathologic conditions—those due to extension into adjacent structures, and also those due to reflex nervous impulses. From a clinical point of view there is still need of much research into the pathology and treatment of this region. We are in need of more uniform nomenclature and there must be a better understanding in regard to the best procedures, medical and surgical, for the relief of the various conditions with which we have to deal.

It is important that we do not forget that the ethmoid with the middle turbinate performs two very important functions. The air-spaces within the ethmoid act as non-conductors of heat and cold as well as other irritations, and through this structure the orbit and its contents are protected from the frigid currents of air which are inhaled during cold weather and which without this non-conductive barrier would come into close contact with these delicate structures. The restriction of the superior and middle fossae of the nose by the ethmoid with its middle turbinate and covering of erectile mucous membrane provide for the warming and moistening of the inspired air before it enters the throat and passes into the lower respiratory organs. When for any reason the middle turbinate and lower wall of the ethmoid have to be sacrificed there results a deformity which practically produces all of the ill effects of mouth-breathing. The inspired air is not sufficiently warmed or moistened and there almost always follows a chronic dry pharyngitis and a chronic laryngitis. Frequently the trachea and bronchi suffer in like manner as the upper respiratory organs. These patients almost always suffer from orbital as well as nasal disturbances whenever they are subjected to the influence of cold or dry air or to air contaminated with irritating dust or gases.

---

* Read before the Section on Laryngology, Otology and Rhinology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

I am devoting considerable space to these preliminary remarks concerning the physiologic functions of the ethmoid and to the resulting disturbances when for any reason this structure has to be sacrificed, as it is of the utmost importance when we take up the study of this subject in the concrete. Were it not for the great importance of this structure, the clinical significance of our study would be reduced to a simple operative procedure. There would be nothing gained by the expenditure of time and energy in trying to differentiate between the infections of the various cells of the ethmoid or of the middle turbinate, for it would be easier to remove all of the turbinate together with the nasal wall and trabeculae of the whole ethmoid. With our present knowledge, the most important thing is to ascertain, so far as possible, the degree and extent of the existing pathologic conditions, to learn of the duration of the disease and whether there have been previous attacks, to consider the inconvenience of the existing ethmoid disease to the patient, the degree of extension into other structures and the inconvenience as well as danger due to this extension. It is likewise of great importance to consider the patient's general condition, his hygienic surroundings, his habits and previous treatment, if any. After having gone over the individual case, unless we are sure that the whole ethmoid structure is beyond repair, I believe it is our duty to make the patient understand that it will give better results in his case to save all the nasal structures possible and tell him that in trying to obtain this final result several operations may be necessary. After this understanding, we should do only what we believe to be essential to accomplish the results and follow this up with suitable treatment, resorting to further operative interference if found necessary. We cannot make this point too strong because it is so easy to be led into extensive radical exenteration; and it is impossible to restore structures once removed or to overcome the symptoms frequently resulting from this extensive loss of tissue. In extensive ethmoid diseases it may be absolutely impossible to stop the progress or to give relief without thorough exenteration. When we are able to prove that we are dealing with such conditions it would be folly to attempt what would ordinarily be conservative treatment. The most thorough exenteration is none too radical and must be advised.

The ethmoid cells are intimately associated and are practically a part of the labyrinth of cells beginning anteriorly with the frontal and ending posteriorly with the sphenoid. Through their drainage they are also more or less intimately associated with the large inferior orbital cell, the maxillary antrum. In dealing with the ethmoid cells—from an etiologic, a diagnostic, a prognostic and a therapeutic point of view—we have to consider carefully the frontal and sphenoid cells and also the maxillary antrum. The symptoms are frequently exaggerated by those arising from a coexisting frontal, sphenoid or maxillary disease, or they may be simulated by disease of these associated areas. Again, disease of the maxillary may be simulated or produced by the discharge of a diseased ethmoid into its cavity.

Irritation of associated nerve filaments, especially the dental, may produce symptoms of pain and sometimes hypersecretion of mucus within the nose which naturally suggests infection and may lead to a wrong diagnosis unless much care is exercised.

Clinically, we see a number of pathologic conditions within the ethmoid. These conditions vary in intensity and produce varying and various degrees of symptoms. These symptoms are not necessarily a guide to the severity of the pathologic process. The anatomy varies considerably and this variance is an important factor in the production of the symptoms and in the progress of the pathologic processes.

Although it is clinically impossible to classify satisfactorily the pathology of the ethmoid, for the purpose of more easily presenting the clinical aspect, we can first divide it into two classes, the purulent and the non-purulent. The purulent may be either acute or chronic. The non-purulent may occur as an acute inflammatory, a chronic inflammatory, a degenerative (polypoid and atrophic), a syphilitic, a tuberculous or a neoplastic. The purulent or non-purulent types may occur independently or may be associated. The acute inflammations are extremely common and are usually associated with attacks of acute general rhinitis. The majority are self-limited. They are often the most difficult to diagnose as the symptoms are frequently the only real guide, and when the drainage is not materially obstructed the symptoms may be so slight that the condition is overlooked. When there is associated purulent secretion which can be observed coming from some of the ostia, the diagnosis is easier and more positive, but more frequently the secretion if excessive is mostly serum and it is practically impossible to state positively from what area it is coming. It spreads out over the mucous membrane of the turbinates and fossae and discharges from the nose anteriorly or into the epipharynx posteriorly.

The symptoms in this condition are usually not severe until some of the channels of escape become blocked by the swollen mucous membrane. When there is a blocking of excessive secretion from the ethmoid cells there arises a sensation of fulness and heaviness within the head and there begins a more or less severe pressing pain which radiates from the eye and often extends into the temple, the parietal, and sometimes into the postauricular areas. All the visible mucous membrane within the nose is usually infected and more or less swollen, as the results of the infective process usually spread over quite an extensive area.

The important objects to accomplish are first to relieve the distressing symptoms and to relieve pressure within the bony encased areas so that normal circulation may be established and the inherent vital forces given a chance to combat these infective elements and restore normal conditions as quickly as possible. The more rapidly and perfectly this takes place, the less liable is there to be a weakened resistance or a chronic termination. Though 70 per cent. or more of the acute inflammatory processes within the ethmoid cells are self-limited and result in cure without any interference, the knowledge that the others are liable to become chronic and may become extremely severe, producing not only local distress but also general infirmity, should make us very careful in studying and treating all the patients who come to our attention. It is important that the general condition of the patient receive immediate and appropriate treatment. The gastrointestinal tract must receive attention and the patient should be protected from exposure and fatigue.

Locally, much can be gained from a diagnostic point of view by a systematic application of cocain about the ostia which naturally drain the various accessory cells. In order to gain positive knowledge, it is advisable to use a very small cotton-tipped applicator saturated with 5 to 10 per cent. cocain solution, and to carry this directly to the anterior portion of the middle fossa under the tip of the middle turbinate. The patient's head should be inclined forward. If after a few minutes the distressing symptoms are relieved we can reasonably assume that the principal cause of the trouble is the anterior portion of the ethmoidal labyrinth or within the frontal sinus. At least the main object of our research, the relief of the pressure and faulty drainage has been obtained, and if this can be maintained our patient is nearly always started on the road to recovery. If this first application gives only slight or no relief, the next application should be made at the posterior end of the middle fossa where the posterior cells are liable to communicate with the nose. After this procedure the floor of the nose can be anesthetized and a thorough endoscopic examination made.

In acute cases in which cocain and epinephrin establish drainage and give relief to the symptoms, the local use of these with the addition of argyrol is usually sufficient to effect a recovery in a comparatively short time. There are cases with acute onset in which we cannot establish drainage and give relief by local application, and more radical interference may be necessary. These cases may be annoying as we realize the great necessity of preventing serious advance and destruction of tissue and the desirability of sacrificing as little of the nasal structure and function as possible.

If the site of the disturbance seems to be in the anterior group of cells, an excision of the extreme anterior portion of the middle turbinate may be advisable and the anterior internal wall of the bulla ethmoidalis may be removed. The temptation is to use the curet extensively within the spongy cells, but this must be resisted until such time as we are reasonably sure that it is absolutely necessary.

Chronic suppurations of the ethmoid vary much in degree and in severity of symptoms. The purulent secretion within the nose is frequently very annoying, and that which flows backward into the epipharynx and into the pharynx may be very distressing when profuse, and extremely disagreeable when it is retained and forms decomposing crusts. The irritation of the mucous membrane within the nasal chambers with the resulting swelling frequently impedes the passage of air. There is often pain over the bridge of the nose or radiating from the nose to the temporal region. There are at times disturbances within the orbit. Frequently the complications within the epipharynx and eustachian tube produce the only severe symptoms. Quite often there is more or less enlargement of the normal cellular spaces because of retention of hypersecretion, and frequently these cells become much distended. This is especially true of the middle turbinate. When the condition is at all advanced, the cystic turbinate obstructs the nasal passage and produces the symptoms due to obstruction. The chronically inflamed ethmoid when subjected to excessive pressure from retained secretion frequently becomes necrotic. If this necrosis happens to break down the cell walls so as to produce good drainage, the process is occasionally self-limited. This is not, however, the general course of events. There usually develops more or less profuse granulation-tissue which tends to retain the secretion, and unless aided by surgery the process slowly advances. In this condition the middle turbinate may become so cystic and enlarged as practically to fill the superior fossa and obscure from our direct or endoscopic inspection the middle and superior fossae of the nose. Pus may be seen in the groove about the turbinate, but it is impossible to determine its original source. Sometimes much can be gained by crushing the turbinate with forceps, as sufficient space may be gained to be able to inspect the middle as well as the superior fossa. When there is sufficient space to obtain a good endoscopic view we can frequently determine the extent and location of the disease. The increased space obtained by reduction of the turbinate may enable direct treatment and a cure may result with little sacrifice of tissue and slight, if any, loss of function. When there is extensive degeneration and necessarily much loss of structure we can hope for relief but not a restoration of a normally functioning nose.

Polypoid formation as well as the hypertrophic inflammatory processes may begin as very circumscribed conditions and without purulent manifestations. Polypoid formation may exist for years and become very extensive without becoming purulent. While examining the nose with the endoscope we not infrequently discover small polypi within the middle fossa under the middle turbinate which have given no symptoms and might cause none until they had become large enough to appear below the turbinate. So far as the ethmoid is concerned, the mucous polyp is practically a malignant manifestation. Unless there is thorough removal of the growth together with the adjacent structure, there is almost sure to be a return of the condition. Little can be expected from a simple snaring of the polypoid mass, and in advanced cases permanent relief can be hoped for only through a radical exenteration of the ethmoid.

Syphilitic disease of the ethmoid may at first appear as a simple acute or a subacute inflammatory process. Later it may give symptoms and show the signs of a purulent ethmoiditis. It is important in all ethmoid disease to consider and estimate, if possible, the possibility of syphilitic infection. When there is a possibility of the ethmoiditis being due to syphilitic extension, surgical interference should never be resorted to until after thorough antisyphilitic medication.

Neoplasms of the ethmoid other than polypi are very rare, and when discovered are frequently beyond eradication. Whether of the sarcomatous or carcinomatous type they are usually friable and very vascular. Any soft vascular tumor within the nose should arouse suspicion and receive immediate attention.

The technic of the various operative procedures is so well known that it has not seemed necessary to consider the subject here. It is also very difficult to deal with this subject in a conservative manner without being misunderstood. In certain cases the most radical procedures are really conservative, and were it not for the importance of the surrounding and associated organs they should be made even more radical. It is so much easier to perform a radical operation than to be obliged to perform perhaps several less thorough ones that inasmuch as the radical measures sacrifice more of the physiologic functions it is our duty to refrain from great sacrifice of tissue unless we are reasonably sure that other so-called conservative measures will not suffice.

531 Beacon Street.

PATHOLOGY OF THE ETHMOID LABYRINTH*

G. E. SHAMBAUGH, M.D.
CHICAGO

In this consideration of the pathology of the ethmoid I shall take up only some of the more common pathologic conditions which have come under my own observation and discuss the clinical symptoms by which these conditions can be recognized.

The most frequent pathologic condition involving the ethmoid labyrinth is acute catarrhal ethmoiditis. This develops as a frequent sequel to an acute coryza. The changes in the mucous membrane covering the ethmoid which are characteristic of this condition can often be observed by an examination of the middle meatus where the ethmoid labyrinth comes more or less clearly into view. In these cases, by inspection we can recognize along the under surface of the middle turbinated body, along the unciform process, and along the exposed surface of the bulla ethmoidalis, an edematous-like swelling of the mucous membrane. Occasionally we observe in this acute form of ethmoiditis the formation over the exposed part of the ethmoid of small mucous polypi, which tend to disappear spontaneously on the subsidence of the acute process.

The occurrence of acute catarrhal ethmoiditis can usually be recognized from the symptoms, which are the result chiefly of impaired ventilation and drainage of the ethmoid cells, occasioned by the swelling of the mucous membrane. The patient experiences a characteristic sense of pressure and fulness, or even of pain, between the eyes. There is a profuse discharge of mucous into the nose and, as a rule, a great deal of sneezing. The latter symptom is more or less characteristic of impaired ventilation of the ethmoid and is perhaps the most characteristic symptom of the chronic hypertrophic form of ethmoiditis.

An occasional sequel of acute catarrhal ethmoiditis is the occurrence of a closure of an ethmoid cell, with retention of secretion, over a considerable period. It is associated with a sensation of fulness or pressure in the region of the ethmoid. Very often the condition is relieved, after it has existed for a few weeks, by the spontaneous discharge of a quantity of a lemon-yellow or straw-colored fluid from the nose. More rarely the condition persists as a chronic mucocele, with a gradual distention of the ethmoid cells, sometimes toward the nasal chamber, at other times toward the orbit, through the orbital plate of the ethmoid.

An acute purulent involvement of the ethmoid labyrinth, acute empyema, is not so common. In these cases the profuse discharge of pus into the nose may be associated with a great deal of pain, caused primarily by impaired drainage from the ethmoid cells. The result of the impaired drainage is the same in the acute empyema of the ethmoid as when this condition develops in acute empyema of the mastoid; the bony framework becomes involved. With the softening of the bony walls of the ethmoid there is likely to develop an extension into the orbit and, finally, an external fistula, which is usually located either just above or just below the inner canthus of the eye. When the ethmoid bone becomes involved in cases of acute empyema of the ethmoid the process is certain to persist as a chronic empyema unless the diseased bone is thoroughly removed by operation.

Of the chronic pathologic conditions involving the ethmoid, the most common and often the most troublesome form is chronic hypertrophic ethmoiditis. This is primarily a non-suppurative disease, but with the impaired drainage of the ethmoid cells, which the hypertrophy of the mucous membrane produces, the condition may become the seat of a secondary suppuration which persists after an acute infection as a chronic empyema.

The first change that takes place in the hypertrophic form of ethmoiditis is in the mucous membrane, which undergoes a polypoid degeneration. This involves the mucous membrane lining the ethmoid cells, as well as the covering of the nasal wall of the ethmoid, especially the unciform process and the bulla ethmoidalis. Later, the ethmoid bone itself becomes involved. The changes in the bone are the result in part of reabsorption of the bone, and in part of newly formed bone, the former, as a rule, predominating. The symptoms by which the hypertrophic ethmoiditis can be recognized are quite characteristic. The patient complains of symptoms of almost continuous acute head cold, attacks of sneezing associated with profuse water discharge from the nose, sensation of fulness and pressure between the eyes, etc. A careful examination of the middle meatus is often necessary before one can detect the characteristic polypoid degeneration over the exposed surface of the ethmoid. It is not always possible to determine the extent of the process involving the ethmoid by the changes observed in the middle meatus. Very often one detects only a few small polypi under the middle turbinate, when an opening of the labyrinth discloses an extensive polypoid degeneration of the membrane lining the ethmoid cells. The hypertrophic form of ethmoiditis is not infrequently a part of a diffuse hypertrophic process involving the lower turbinate bones as well.

The chronic empyema of the ethmoid cells occurs usually as described above: first, by the persistence of an acute empyema, because of the involvement of the bony framework when the drainage has been seriously impaired; second, by an acute infection taking place in the presence of a hypertrophic ethmoiditis—here the impairment of drainage keeps up the process as a chronic empyema.

---

* Read before the Section on Laryngology, Otology and Rhinology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

There is a chronic atrophic form of ethmoiditis seen, as a rule, in connection with a general atrophic process throughout the nose. In these cases, the atrophy apparently begins in the mucous membrane of the ethmoid, but, just as in the remainder of the nose, this atrophy is associated with atrophy and shrinking of the bony framework. This atrophic process is, as a rule, bilateral, but it is not uncommon to find the disease limited chiefly to one side of the nose. We see it developing on the side where a deflected septum has produced a roomy nasal passage, as well as on the more obstructed side. It is in these unilateral cases especially that we should suspect some circumscribed process, such as a focus of pus in the ethmoid labyrinth, as the cause of the atrophy. This conclusion is borne out by certain cases in which circumscribed suppuration of the ethmoid is associated with an area of atrophy restricted to the immediate region of the ethmoiditis. I have seen a circumscribed area of atrophy in the recessus spheno-ethmoidalis in which chronic empyema of the sphenoid was found unassociated with any involvement of the other nasal accessory sinuses.

The cystic enlargement of the middle turbinated body and of the bulla ethmoidalis are often described as pathologic conditions. While it is true that these structures may be the seat of a mucocele which is causing them to enlarge, the enlargement is usually in the nature of an anatomic variation. These variations are quite common in the formation of the ethmoid labyrinth. It is not unusual, for example, to find a large ethmoid cell developing in the floor of the frontal sinus, or for an unusually large cell to develop at the expense of the other ethmoid cells. The aberrant ethmoid cells which occasionally develop in the middle turbinated body may become the seat of a chronic inflammatory process, just as may any other ethmoid cells. In most of the cases of cystic enlargement of the middle turbinated body the cell is free from any secretion.

Tertiary syphilis not infrequently involves the ethmoid, with extensive bony necrosis. In these cases the orbit is usually sooner or later involved and an external fistula forms in the region of the inner canthus.

The development of a primary malignant growth in the ethmoid labyrinth is occasionally observed. The first symptoms in these cases are likely to be those produced by a secondary involvement of the orbit, while in the nose there may be relatively little to indicate the serious character of the disease.

122 South Michigan Avenue.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. HOLMES AND SHAMBAUGH

DR. ROSS HALL SKILLERN, Philadelphia: In 1909 when Uffernorde first brought out his work on the ethmoid he laid particular stress on the idiopathic, hyperplastic form. That is the form, of course, of polypoid degeneration and polyp formation. Previous to that time we considered that all polyps springing from the ethmoid region were due to some form of sinusitis, generally purulent, and when Uffernorde made that statement it was received with opposition by his German colleagues. It was taken up here, however, and now has come into general acceptance in Germany as well.

Uffernorde's classification really failed to bring out anything new. Twenty-five years ago Bosworth brought out a classification in which he mentioned this hyperplastic form. He divided ethmoiditis into six forms, and while some of these varieties were but different degrees of the same condition, nevertheless he anticipated Uffernorde in mentioning this distinctive form and so the priority belongs to an American. For operative purposes we can divide the condition of the ethmoiditis into the hyperplastic, the suppurative and a combination of these two. The hyperplastic may be extracapsular, the polyps being outside of the capsule without the cells being affected. The suppurative form may include one or more cells. As a rule, the suppurative ethmoiditis is limited to the anterior or posterior cells. Except in the atrophic form, suppurative ethmoiditis of the whole capsule is not frequently met. We may have a combination of these two forms, of course. The question has been raised whether the polyps cause the sinusitis or the sinusitis the polyps. It has been shown that when these conditions are in combination they are dependent on one another. There is an idiopathic form, in which pus never occurs, and again cases occur of the worst kind of purulent sinusitis in which polyps have never been seen.

This new operation has its place in certain conditions, the principal of which is when the middle turbinate lies close to the lateral wall of the nose, when it is going to be hard to infract the turbinate and get underneath it. Dr. Mosher short-circuits the whole thing. He makes a hole in a definite place where certain things are to be found underneath. At present the way we operate on the ethmoidal labyrinth is first of all to attack the uncinate process which stands out in front of the ethmoid capsule, sometimes from 0.5 to 1.5 mm. We break that down with the hook; that gives us this extra distance. The bulla is directly in front and we can easily resect it. In the past in operating on the ethmoid we failed to have a sufficiently clear idea of just what we proposed to do when we started out. We should be in the same state of mind as the general surgeon when he starts an exploratory operation in the abdomen, for example. He opens the abdomen but doesn't know exactly what he is going to do. We say, "Well, we will go in and take out the polyps and make a nice clean passage," but we know they are going to return sooner or later. Now if we make up our minds when we begin that we are going to take out these polyps and see what is underneath, and if necessary continue further back, we will be doing a more satisfactory operation. If we have definitely in view that we are going as far as the indications warrant, we will do better work and get better results.

DR. OTTO T. FREER, Chicago: Deep hyperplastic ethmoiditis, as I have found it, is more inclined to involve the anterior ethmoidal cells than the posterior, but may include the entire ethmoid labyrinth. In marked cases the middle turbinated body and all of the cell-walls except a few remaining spiculae of bone are absorbed and the lateral mass of the ethmoid bone is replaced by polypi tightly packed in a space bounded outwardly by the orbital plate, above by the cranial plate over the ethmoid cells and internally by the nasal septum. In such extensive cases, not rare, Dr. Mosher's landmarks are lost, but nature furnishes a guide in the form of the polypi and softened bone, the operator knowing when he has reached the boundaries of the disease because his curet encounters firm, hard bone. I employ Grünwald's sharp spoons, the Grünwald punch with its wide mouth, and also ring curets, as the ring form cuts best. It is necessary to curet not only to the orbital plate but also forward and upward toward the frontal sinus, as the frontal cells (Killian) are nearly always involved, blocking the outlet of the frontal sinus, so that, after their removal, the operator nearly always finds himself in the frontal sinus and close under the cranial plate. After the operation a large cavity is seen above the lower turbinate with hard walls and free from polypi. A consideration of the anatomy of the region, as given by Dr. Mosher, will show how great the need of caution is in deep operations on the ethmoid bone. The dangers of the operation are penetration of the orbital plate, penetration of the cranial plate over the ethmoid cells and entering the antrum of Highmore. The latter accident is usually without consequence, though acute maxillary sinusitis may occur. In two cases related to me by colleagues, penetration of the orbit was followed by blindness, the cause, in one case, being hemorrhage into the orbit; in the other, orbital abscess. To avoid such accidents the curets must be sharp so that they may be used without force and nothing must be done without the aid of sight. Working cautiously with curet and punch, and taking his time, the operator need not fear disaster.

Dr. George F. Cott, Buffalo: Dr. Mosher's operation is one of the neatest, cleanest, best operations for draining the ethmoid cells that has ever been proposed. In latent sinusitis many pathologic conditions occur, producing great discomfort to the patient, as rhinorrhea, excessive sneezing, etc., with apparently no affection of the sinuses. That is in the latent stage, in which there is no pus, perhaps no mucopurulent discharge, but if the cells are opened and cleaned out often almost immediate relief is obtained.

Dr. W. W. Carter, New York: I do not think we should ever operate in acute ethmoid inflammation unless there is distinct evidence of pus under pressure. With regard to chronic purulent discharge, we all know from the structure of the cells, the position of their ostia, that it is impossible for them to drain thoroughly unless an opening is made into them. The real indication for operation on the ethmoid should depend on the condition of the bony walls of these cells. It has been shown that one of the earliest changes in polypoid degeneration occurs in the vascular layer of the periosteum, that it is a passive hyperemia, producing an edema. The condition, therefore, of the bone is a pathologic one, and if the bone is diseased you must remove it. Therefore polypoid degeneration is a definite indication for exenteration. Since the introduction of the Mosher operation I have used it a number of times and have had excellent results. It has given me a confidence in operating in this region that I never had before.

Dr. F. W. Sears, Syracuse, N. Y.: I speak from the patient's point of view. I suffered for years from ethmoiditis, which had finally resulted in severe attacks of asthma. A number of operations were performed with practically no benefit. Finally a Baltimore specialist attempted to relieve the trouble by an operation under a local anesthetic, which did not relieve the ethmoiditis. The asthmatic conditions came on worse than ever during the following October. At that time Dr. Mosher, after having several roentgenograms taken, operated under a general anesthetic. I believe the anxiety and suffering from local anesthesia more than offsets the discomforts and dangers from a general anesthetic. The operation resulted in a complete relief from the asthmatic conditions and a rapid restoration to health.

Dr. A. L. Burdick, Lansing, Mich.: I was impressed by Dr. Shambaugh's remark in which he compared the ethmoid to the mastoid labyrinth. I do not know why this is not oftener done. I was called to see a patient who had fever and intense pain, and exophthalmos of the left eye. There was a history of chronic nasal discharge for fifteen years. On examination the condition was undoubtedly one of purulent ethmoiditis. Four hours later I operated and removed literally sacs of pus, the sacs made up of the lining of the ethmoid cells. After three hours the pain was gone and the patient was practically well. In this case there was abscess of the orbit, but it was not followed by blindness.

Dr. G. W. MacKenzie, Philadelphia: We may classify the condition into different types, but there are all grades of these different types and every case becomes individual. Conservative treatment is important for that reason. A patient came to me who had been operated on on the right side of the nose for frontal sinusitis, accompanied by maxillary sphenoiditis and more or less ethmoidal disease. It was on the concave side where there was a considerable deflection of the septum. I washed out each of these cavities and could find no involvement of the cells at this time. The patient, however, had an accumulation of mucopurulent secretion over the posterior part of the septum and more or less on the lateral wall. I cleansed it thoroughly and inspected the parts with the Holmes endoscope, which is advantageous in examining that region. After having assured myself by these methods that nothing was present, I sent the patient to two roentgenologists who made various roentgenograms, none of which showed positive indications of sinusitis. I then tried the experiment of plugging the right side of the nose with cotton sufficiently to filter the air breathed in this wide-open side. The patient reported the next day saying that he had no secretion. I tried the experiment several times and have since tried it in other cases, and I find that when there is sinus disease, on removing the cotton there is a jelly-like secretion and when no sinus disease exists there is practically no secretion. This led me in this case to do a septal operation with most favorable results.

Dr. Charles R. C. Borden, Boston: I emphasize an important point made by Dr. Holmes. The second turbinate is a valuable structure and should be preserved as much as possible. In the early cases it is possible to save a considerable portion of it. Removing the anterior ends of the turbinate is poor surgery if it can be avoided. In cases in which simple drainage is desired I perform a modification of the Mosher operation, using a biting forceps in place of a curet. I have had several unfortunate complications following the use of a curet and consider it a dangerous instrument. It is a comparatively safe and simple procedure to open the anterior ethmoid cells at Mosher's point of election with a biting forceps, making a long narrow pathway through the body of the ethmoid until normal bone is reached. A little force is required to make the first bite, but after the cells are reached they cut away with surprising ease. One is often amazed at the large number of small polypi which will come away in the mouth of the forceps when none were suspected of being present. The curet usually fails in this respect, as that instrument simply pushes the polypi aside. Of course, in advanced cases, this method of procedure will not be sufficient. In the early cases, however, it not only provides the desired drainage, but removes the polypoid tissue and at the same time leaves a considerable amount of healthy tissue in place, which is desirable for the welfare and comfort of the patient. In the advanced cases I perform the Mosher operation, using both biting forceps and the curet as it is practically impossible to use the forceps alone. I have known several cases of meningitis to follow operations and great care is needed in doing them with any form of an instrument.

Dr. John O. Roe, Rochester, N. Y.: After listening to Drs. Holmes, Shambaugh and Mosher, one would naturally get the impression that operations on the ethmoid sinuses are simple procedures and that to enter the ethmoid sinuses and curet or cut away diseased tissues is comparatively free from danger. I therefore call attention to some of the dangers connected with these operations, especially in the hands of amateurs. Recently two deaths occurred in Rochester following nasal operations. These deaths, however, are not the only ones to be referred to, for the report of cerebral complications in nasal surgery are too frequent to be reassuring to the amateur, and it is only by those experienced in this line of work that such operations should be undertaken. I agree with Dr. Borden as to the advantage of biting forceps over the curet in many cases. When the walls of the ethmoid cells are quite thin and more or less fragile, the curet has its advantages, but in cases of more rigid walls, I have found the biting forceps much superior. For the anterior ethmoid cells I use the straight biting forceps, similar to those mentioned by Dr. Borden, but for entering the posterior ethmoid cells, I use forceps that I have had made, with cutting blades set at right angles to the shaft of the forceps, which I have previously described. In many of these cases we find marked enlargement of the turbinal cells of the middle turbinate body, completely blocking the central portion of the nasal fossae. In dealing with these cells, I first determine their presence and extent by puncturing them at their anterior portion with a slender bistoury. In a large majority of cases, the knife will enter the cells freely, indicating at once the nature of the conditions we have to deal with. With the straight forceps the outer wall of these cells is taken away, then by fracturing and forcing outward the inner wall, the nasal passage at this point is made free, while at the same time a mucous membrane forming a covering for this outer wall, is preserved. Before entering the posterior cells with the rectangular forceps, or even with the curet, it is of the utmost importance to locate carefully the posterior wall of the nasal passage, particularly in the region of the cribriform plate. This I do with a slender flat probe, made of steel, the distal end 4.5 mm. wide and very thin. It will go where the round probe will not, and with it the exact location and condition of the parts can readily be determined. This little instrument I have found so exceedingly serviceable in all such work, that I have dubbed it "my long finger."

Dr. H. Wilson, Detroit: If I do not err in my understanding of the essential nature of Dr. Mosher's operation, the use of biting forceps in exenterating the ethmoid labyrinth goes aside from the spirit of the operation itself. I recall no other nasal operation which is exactly the same as Dr. Mosher's. It depends for its success on the ability of the operator to visualize the anatomic and pathologic conditions that exist at the end of his curet. Without this, one cannot properly execute the operation. The ability that we possess to translate the impression we receive from biting forceps fails to meet the requirements of the operation. It seems to me, however, that that is the crux of the operation itself; that is what makes it different from all other ethmoidal operations. It begins at a different point and we know our landmarks from that point on. As to the serious results spoken of, no one has a right to perform such an operation who has not acquired this power of visualizing the anatomic structures he is engaged in operating on. Failure to be able to do this may be the cause of the unfortunate results that Dr. Roe and others have referred to.

Dr. Joseph C. Beck, Chicago: It is important to amplify the gross pathology of ethmoiditis. The names of three men should be mentioned in referring to the pathology of ethmoiditis—Woakes, Uffernorde and Wright. Last year I presented at the meeting of the Laryngological, Otological and Rhinological Society the subject of the histology of ethmoiditis, in which I showed the varieties I had found in my own practice. The bone and periosteum show the greater change, except in the acute cases. There is a distinct difference between polypoid and inflammatory edema of the mucous membrane and it will make a great difference in the results of operation. In the hyperplastic form, imperfection of the bone and periosteum are essential points in the pathology, not secondary changes from infection; it is a degenerative process. It would be well for men to study their clinical cases and make a few sections showing where the disease is in individual cases. Two years ago this operation was demonstrated to me by Dr. Mosher. I went home and tried it on one side, the old method on the other. Now I use no method but his. If some one comes and tells us of blindness occurring in a certain case, thus putting a damper on such an operation, we should know who such operators are. It should not frighten expert men away from doing a good operation.

Dr. Lee M. Hurd, New York: Sometimes instead of the papery shell-like bone of the ethmoid we find it very thick, from 1 to 1.5 mm. of hard bone. In one case I could not get through. We find necrosis of the bone of the ethmoid cells of a non-specific nature at times and we do not get the condition well unless we exenterate the entire labyrinth. Taking out the polyps alone is like cutting the heads off dandelions. To get a cure we must do an exenteration. How does Dr. Mosher get at the prolongations of cells over the orbit? A straight curet will not reach these. I have been injecting Beck's paste into any remaining cells that cannot be reached at the operation and it seems to aid.

Dr. E. M. Holmes, Boston: I do not want to give the impression that I am opposed to operative procedures in the treatment of ethmoiditis. I thoroughly appreciate the work of Drs. Mosher and Skillern and others and am glad to see this operative improvement, but my paper was as I said, conservative, because we are seeing so much operative work, extensive exenteration, by men who are new at the work and who have not had sufficient experience. It is much easier for them to sacrifice all the structures in the nose than properly to study the case. All tissue which can be should be saved so that all the functions possible may be conserved. We all find cases in which polypoid degeneration extends to the upper and outer wall of the ethmoid cavity, even after thorough operation. It may be our duty even to remove a portion of the orbital plate.

Dr. George E. Shambaugh, Chicago: Perhaps the most interesting pathologic condition involving the ethmoid labyrinth is the condition first described by Woakes, which we now recognize as the non-suppurative hyperplastic ethmoiditis. It is often the most difficult to recognize and is the cause of the most troublesome and, in a way, the most interesting symptom. It is this form which is often associated with asthma. The early symptoms are those of recurring acute head colds, sneezing attacks, etc. I received a shock some years ago when Dr. Bosworth described his method of curing recurring acute head colds. He stood behind the patient and with an electric burr reamed out the ethmoid labyrinth. We now recognize that he was operating for the relief of symptoms caused by hypertrophic ethmoiditis. We are doing the same thing now, only not quite in the same way. The one thing most essential in operation on the ethmoid is that the operator have a clear conception of the anatomy of this region. Unless he understands this thoroughly he has no business operating. To my mind not the least important part of Dr. Mosher's work has been to get our men interested in acquiring a better knowledge of the anatomy of this region. I am accustomed, when operating on the ethmoid, to do the work under local anesthesia. I usually remove a part or the whole of the middle turbinated body; then with a Hartman nasal forceps I begin in front and break through one cell after another until the whole labyrinth has been exenterated. The work with the forceps requires but a few seconds to complete. If one direct the pressure outward, backward and upward, one keeps clear of the cribriform plate. For this reason I like to leave standing the mesial wall of the labyrinth. The roof of the ethmoid labyrinth is a firm bone, whereas the cribriform plate is very fragile.

Dr. Harris P. Mosher, Boston: We have many good methods of getting into the ethmoid, but we want, more than anything else, a better idea of the pathology of ethmoiditis. I have found that non-success in getting into the labyrinth easily in this way is often because the curet is not placed high enough up or far enough back. Dr. Skillern says go as far as the pathology in the particular case warrants. That is the right idea. Dr. Freer said that in many cases of degenerative process there are no landmarks; that they have been destroyed. Of course that is true, but if one has a systematic procedure to follow one will not be in danger. As to the use of biting forceps rather than the curet, I prefer the curet until I find out where I am, and then I use the biting forceps. I use it freely after I have secured orientation with the curet. As to the serious results spoken of, anyone who does work on the ethmoidal labyrinth without a proper anatomic and surgical preparation simply has no surgical conscience. I agree with Dr. Wilson that to be able to visualize the operation is the main thing. As to Dr. Hurd's question about the cells that extend out over the orbit, they are, as he says, difficult to reach; I simply do with them the best I can. Dr. Shambaugh says he leaves the middle turbinate. I use the middle turbinate as a landmark to keep me in the labyrinth and to keep me away from the olfactory fissure. Then when I have cleaned out the labyrinth I remove the middle turbinate to free the front face of the sphenoid.

I. THE SECTION ON STOMATOLOGY: ITS NEEDS, ITS DUTIES AND ITS OPPORTUNITIES. II. THE FIELD OF STOMATOLOGY*

WILLIAM C. FISHER, D.D.S.
NEW YORK

I. ITS NEEDS

I do not think there has ever been at any time in the life of this Section any question as to the quality of the membership or of the caliber of their intellect, but I do know that the numerical strength of our membership and more particularly the attendance on our scientific meetings has more than once been a subject of regret and even concern. Time and time again have excellent programs been prepared and presented to an audience so small as almost to discourage the essayist and embarrass the members. Therefore, I venture to state that one of the great needs of our Section is increased attendance and that can be the better accomplished through increased membership. Understand I do not for one moment think we should lower the high standard that has been so diligently maintained by those who have in the past years guided the affairs of this Section. And it is not necessary to lower our standard one particle. There *must be* hundreds of able men of the dental profession who if an invitation was extended to them would be pleased to affiliate with this Section of the Association and in so doing bring profit both to themselves and their Section.

The great amount of scientific information developed and presented in this Section every year is of great value to the general practitioner of dentistry, as well as the specialist in the several branches of oral surgery; therefore I contend that this Section on Stomatology is not performing its duties until it makes possible such a dissemination of scientific medical dental knowledge. According to the Constitution of the American Medical Association the degree of M.D. is not necessary for associate membership in several of its Sections, and of this number, the Section on Stomatology is one. And in its particular case the associate member need only possess the D.D.S. degree. Now this is not generally known. The idea most commonly entertained throughout the dental profession is that the additional degree of M.D. is necessary to qualify for membership in the Section on Stomatology. And also I have heard it stated time and again that the average dental practitioner could not grasp the papers presented here. This may or may not be true, but if true does it not just as aptly apply to any and all of the sections of the A.M.A. and their respective membership?

We must be a little more liberal and admit to our Section good men of the dental profession. Yes, even urge them to join us, if we wish others to receive the benefit of these excellent programs.

PART II. THE FIELD OF STOMATOLOGY

What is it? In other words where does the practice of dentistry, or stomatology, if you wish, end, and where does the practice of medicine begin? To what point may one possessing only the D.D.S. degree go in the treatment of oral infections; and if my question will not appear too foolish, to what point may a person possessing the M.D. degree go while in the same field. Some of you at this moment are wondering why I raise such a question and what can be gained by it. I raise the question for this reason: that there are at present many men possessing both the M.D. and D.D.S. degrees but licensed by their state to practice only dentistry. They are, I feel sure, frequently in their daily routine trespassing on the territory of the medical practitioner.

Now, legally, these gentlemen are no better off than the man possessing only his D.D.S. degree and so licensed. But I am sure many of the former class have not quite realized this and in their enthusiasm to care for their patients have lost sight of the fact that there must be some point at which the practice of dentistry stops and the practice of medicine begins.

Where that most aggravating point may be, your chairman is not going to dare even to suggest. But it does exist. And the presence in the dental profession of men with great scientific and medical knowledge, which they are daily applying more and more to the practice of dentistry, becomes almost a serious question as to just how far this dental practitioner may go and yet obtain the protection of the law for his acts. Sooner or later the several state legislatures will find it necessary to locate and define this dividing line and it is for this reason that I at this time raise this question, that you may give it serious thought. So that, when the time comes neither the dental nor the medical practitioner shall be hindered in his work, or what is more important the public shall not be deprived of the skill of even one man.

Do not understand me to say that scientifically there is any dividing line between the practices of the two professions. It cannot possibly be located, for it does not exist, but legally it does and we must define it or better define and remove it.

373 Fifth Avenue.

ABSTRACT OF DISCUSSION

Dr. John S. Marshall, Berkeley, Cal.: I have always been intensely interested in this section, and when Dr. Talbot and myself and some of the older men joined it we had to have the medical degree; no one was eligible else. The object in organizing the section was, as Dr. Fisher has indicated, to disseminate dental knowledge to the general medical practitioner. That has been the object all through the history of this section. I believe this section has been the leader in many things with regard to dental medicine and dental surgery. Of course, at first, we realized that, inasmuch as the medical degree was a prerequisite for membership, we could never be a large body. Some may remember that when the Association met in Chicago in 1886, Dr. Allport introduced a motion making dental surgeons with the D.D.S. degree eligible to membership, provided they came from colleges which had the same preliminary requirements that the medical schools had, and that did the same work in the fundamentals, chemistry, physiology, anatomy, etc. That was passed unanimously. Later, after I went into the United States Army, some change was made in the constitution whereby we have regular members who have the D.D.S. degree and also associate members. That has not added materially to the size of our section. There seems to be something lacking to build up the section; what that is I am not prepared to say. I want to make this suggestion, however, that we take up original investigation and present it to the Association as presented to-day by Dr. Price as part of the work done by the Research Commission of the National Dental Association. Our work has always been in the preparation of papers on those subjects that we consider vital for the medical man to know, and these have been read with a great deal of avidity, and altogether we have done much toward bringing before the medical profession the real benefit of a thorough knowledge of dental diseases and their application to general medicine. I should be glad if this old idea of separation between medicine and dentistry could be obliterated. There is a coterie of men always talking about the dental profession as separate and distinct from medicine. I have always talked about dentistry as a department, a specialty of medicine, as much so as that of the eye, ear, nose or throat, or obstetrics and gynecology; but there is a feeling, and statements have been made by older men than myself in the profession, that they did not want to be the tail to the dog. I think it is a good thing to be the tail sometimes, provided you can wag the dog. I believe the time is coming when the distinction between dentistry and medicine will be wiped out and we will be simply called dental specialists instead of a separate profession of dentistry.

---

* Chairman's address read before the Section on Stomatology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, June, 1914.

Dr. H. L. Wheeler, New York: I am desirous of getting some information. I find written across my membership card always, and I have been a member of this section for many years, "Associate Fellow." Can anyone tell me what that means?

Dr. E. S. Talbot, Chicago: I cannot answer that.

Dr. F. B. Moorehead, Chicago: If you became a member through your state medical society, you should be a Fellow.

Dr. Wheeler: I am a D.D.S.

Dr. Moorehead: Then you are simply an "Associate Fellow."

Dr. Wheeler: That is the rub. I have no inclination to apologize for being a D.D.S. I have the medical certificate from the regents of the state of New York, but a great many dentists feel that there is a distinct line drawn between the degrees of M.D. and D.D.S., to the disadvantage of the D.D.S., in an organization composed largely of men with the M.D. degree. I feel it because I have probably done more organizing of dental service in hospitals than any other man in the country, and I have had that same difficulty in New York, which has dealt absolutely fairly with the dentist from start to finish, and there, at present, dentists are on the same footing as medical men, getting the same titles and the same pay in every department in which they serve. I believe this section has been useful and I believe that it can be made more useful. I believe, as Dr. Marshall has said, that our profession is a specialty of medicine. I have no sympathy with the idea of dentistry's being a separate profession any more than I feel that it is necessary for me to apologize for being a D.D.S. and nothing else. I believe that the D.D.S. covers that specialty thoroughly and completely, and that if dentists are wanted to attend these meetings they must be given to understand that there is no discrimination between men; that if one has the ability it does not matter what degree he holds. When the profession is convinced that whether the M.D. degree is or is not held, if a man holds the D.D.S. degree and shows ability to work substantially for the good of the healing art, I think we will have a much larger membership than we now have. I do not mean to infer that the attitude of the section is against the man who holds only the D.D.S. degree, but there is a great misunderstanding with regard to it which needs to be rectified. For instance, members of this section in New York have attempted to establish special service in the hospital in New York, and have insisted that if dentists were to have the recognized position they must have the M.D. degree. You cannot successfully establish such service if that policy is followed out. I have told them, and it is a fact, that in no institution in which the M.D. degree was insisted on have they got any further than the extraction of teeth. The institutions in which they have taken care of the mouth and teeth, in which they are working with the physicians, visiting the wards, and looking after the mouths while the physician is looking after the rest of the body, are the institutions that have taken the dentist without regard to degrees. I am grieved that there should be any difference of degrees when it comes to dentistry, and I believe the quicker that can be ignored the more quickly will institutions of this kind increase their strength.

Dr. E. S. Talbot, Chicago: I shall have to correct both Dr. Marshall and Dr. Wheeler with regard to the matter. There is no difference in their standing, except in degree. As Dr. Marshall has said, when the resolution referred to was passed, dentists were put on an equal footing and we have never had a single instance in which there has been any discrimination from that time. I have repeatedly explained this condition to various men and if dentists do not understand it, it is their fault. There has not been a single instance come up in the section in the House of Delegates or in the general body where the dentist has been discriminated against in any way.

Dr. Marshall: Is that so to-day?

Dr. Talbot: Certainly it is so to-day. Every dentist in this section has the same privileges as the medical men.

Dr. M. I. Schamberg, New York: After listening to Dr. Talbot's explanation that there is no discrimination between dental and medical members of the Association, I call attention to the fact that my card likewise records me as an associate member, and at times it has been worded "dental member" although I hold both the medical and dental degrees. When I came into the section I was a member of the Philadelphia County Medical Society, and I was not even aware that my name came from any other source than through the county medical society, so that I have been surprised to be recorded as a dental member of the American Medical Association. That, however, is a trifle, because, as Dr. Talbot has said, there has been no discrimination at any time by the medical members toward the dental members of this Association. Several points mentioned by Dr. Fisher are of vital importance not alone to the members of this section but to many men practicing throughout the country whose status is not definitely defined by the law, or is not definitely understood. At present I am practicing in the state of New York under a dental license, having been unwilling to submit myself to the humiliation of passing the medical examining board ten or fifteen years after I had finished with the elementary subjects. This, however, every physician has to contend with when moving from one state to another, and makes it imperative that the legislatures of the various states should consider that dentists are primarily medically educated; that we take the elementary medical subjects whether or not we hold the medical degree, and that it is merely coincidental that dentistry has developed as it has in the separate schools. Many men with the D.D.S. degree are as able to perform operations in and about the mouth as we who were fortunate enough to have extended our work a year or so and acquired the M.D. degree. Dentistry is in truth a specialty of medicine and there should be no distinction between the two professions. I believe that, in time, the specialties of ophthalmology, otology, gynecology, etc., will be acquired as dentistry is. This is distinctly a day of specialties, and I believe that men in other specialties are less fitted for special practice on the day of graduation than are the members of the dental profession. It requires special instruction, and dentists have been receiving this and also instruction in the fundamental principles of medicine. Dr. Fisher's address should not be casually passed over. I believe dentistry should be defined in the statutes of the various states.

Dr. G. V. I. Brown, Milwaukee, Wis.: I have given the better part of the last few months to consideration of this subject. It is a pretty good time now for us to clear the atmosphere of these doubts so far as may be possible, and when we get into it a little more deeply there are some very distinct underlying educational questions which must in some way be satisfactorily answered before we can entirely dispose of the matter. I have been trying to suggest a way by which we may ultimately find out where we stand.

With regard to Dr. Wheeler's question, here is the difficulty with regard to membership; when the dental colleges agreed on a four-years' course, the dental members were on a par with the medical men and no difference was made, but when they went back to the three-years' course, there must necessarily be some distinguishing mark between the man who has three years and the man who has four.

Dr. Wheeler: The dental colleges are coming back to the four years' course.

Dr. Brown: I think they are coming to that, but until then there must be some distinction. It does not make any difference either in the conduct of the sections of the Association or their members, but nominally there must be a difference.

Dr. R. H. Ivy, Philadelphia: There is a way in which the section might bring the dental profession closer to the medical profession. The papers of different medical journals are abstracted each week in The Journal of the American Medical Association, and it might be possible through this section to have some of the papers appearing in the dental journals abstracted, as many of these papers are of interest to the medical profession. In that way much of the work of the dental men with regard to oral sepsis and other things would be directly brought to the notice of the medical profession.

Dr. William C. Fisher, New York: I did not purposely bring out the difference in the standing of the members. My idea was to bring to your attention facts which I thought possibly many had forgotten. Dr. Marshall seemed to think that the object of this section was to educate the members of the medical profession in things dental. I think if that was the object of it in its organization, we certainly should widen the scope and also educate dental men in things medical.

THE SECTION ON STOMATOLOGY AS A FACTOR IN THE EVOLUTION OF DENTAL AND MEDICAL SCIENCE*

GEORGE V. I. BROWN, M.D.
Oral Surgeon, Children's Free Hospital and St. Mary's Hospital
MILWAUKEE, WIS.

Recent advancement toward more general recognition of the pathologic influence of oral affections as factors in disease has been so great that almost every thought of distinction between those who treat disorders of the teeth, and the practitioners whose ministrations are directed to the relief of such distress in other anatomic regions, or of the organism as a whole, has been swept as driftwood before a tidal wave in the common desire of a great humanitarian impulse that brooks no trammel of limitation by degrees or titles.

Surely this is an age when dreams come true, for the visions that inspired the speech and directed the pens of such men as Alkinson of New York, Garretson, Bonnwill and Flagg of Philadelphia, Allport of Chicago and their contemporaries in early years touching as they then did the very boundary limits of the heights of empiricism, are now becoming prophetic in the light of actual scientific demonstrations of their truth.

In like manner the foundation laid with the help and guidance of the master surgeon, Samuel D. Gross, and the great builder of medical associations, Dr. N. S. Davis, and the little band of dentists who joined hands as organizers of the Section on Dentistry, now the Section on Stomatology of this great body, the American Medical Association, has become the underlying support of a rapidly extending scientific edifice. It is obvious that this superstructure can be sustained only by an ever-increasing broadness at its base; otherwise this influence must perish. It therefore seems advisable at this time to glance backward along the recorded pages of the thirty-two years of the Section's existence, and then to scan as best we may the already forming, though ill-defined, outlines of the possible future requirements in this division of medical science.

At a meeting of the American Medical Association held at Richmond, Va., May 3, 4, 5, and 6, 1881, there gathered together for the purpose of forming a Section on Dental and Oral Surgery the following organizers: Drs. W. W. Allport, Chicago; Huxhurst, Grand Rapids, Mich.; Eugene S. Talbot, Chicago; T. W. Brophy, Chicago; J. A. Williams, Boston; George L. Parmlee, Hartford, Conn., and D. H. Goodwille, New York. At that meeting Dr. Samuel D. Gross of Philadelphia asked for a suspension of the regular order of business and moved that the By-Laws of the Association be so amended as to create another Section to be known as No. 7 and entitled Dentistry. This was made effective the following year.

The first meeting was held at St. Paul, June 6, 1882. It is especially interesting in view of later events to note that at this time Dr. Allport offered a resolution providing for the appointment of dentists in the Army and Navy and to cooperate with Dr. Maynard of Washington for this purpose.

The resolutions of sympathy spread on the records of the Section, as they from time to time mark the passing of some important member, bear the stamp of a depth of feeling that cannot be measured by ordinary standards because each one of these far-seeing men was an integral part of the little group that was laboring for higher things in the progress of dental science.

My purpose in presenting this brief reference to the past is not so much an endeavor to do justice to faithful individual effort during a period of thirty-two years, deserving of such praise as the work may be, as to try to present in just the right way, if possible, the whole scheme of the present status of the pathology and treatment of tooth and mouth affections in their common relation to other diseases and incidentally to assist in clearing up the confusing conditions which pertain to the professional association of those who treat them, whether distinguished by the degree of D.D.S. or M.D. or both.

I fully realize that it will be next to impossible for me to state in exact terms just what this relationship, or state of interdependence, should be, for no one really knows and no two of those who ought to be best informed have ever been able to state their views similarly. Yet for this very reason there is even greater need of proper treatment of this subject.

To picture comprehensively the real influence of the work of this Section, one should have in mind, first, the all-important part that the mouth plays in the etiology of disease, as a source of focal infection, a cause of local or general nerve disturbances, and a factor in developmental, digestive, circulatory and other disorders; second, a just idea of the constructive benefit of the steadily continuous presentation of these subjects during thirty-two years in a section of the largest and best-recognized medical organization in this country, and of calling the attention of medical practitioners to this particular field in a specific way through the medium of their own medical journal; third, it should be understood that in the past too much attention has been given to degrees and much harm done through failure of dentists generally to realize that strictly dental organizations bear precisely the same relation to the Section on Stomatology of the American Medical Association that the special societies of other divisions of practice bear to their respective associations.

---

* Read before the Section on Stomatology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

For example, the sections on surgery, internal medicine, eye, ear, nose, and throat have their corresponding associations in the American Surgical Association, American Neurological Association, American Laryngological, Rhinological and Otological Society, American Dermatological Association, American Association of Obstetricians and Gynocologists, etc., just as the dentists have the National Dental Association. There should be no question of loyalty involved in consideration of attendance on both.

When the members of the National Association of Dental College Faculties voted to extend the courses in their colleges to four years, the American Medical Association promptly accepted dentists to full membership in this body; but when the colleges decided to go back to three-year courses for graduation, it was obvious that there must be some distinction between men who have had four years' training when considering their association with those who have had only three. Thus dental graduates came to be accepted as associate members, but there is no appreciable difference between these two forms of membership in the conduct of section work and there ought to be a more general understanding of the fact that every dentist in this country has profited in some degree at least, professionally, socially and even personally, by the good work that this Section has accomplished.

There are grave questions to be met if dentistry is to hold her own in the advancement which marks the modern appreciation of pathologic and therapeutic considerations. This is no time to cavil about degrees. The true standard in rating the future practitioner in that branch of the healing art which directly relates to oral affections must be the measure of his knowledge of medical science, and his ability to cope with the requirements of a more or less radically changed order of practice.

From an educational point of view this means that the formerly so-called theoretical branches of the curriculum of his special college courses are after all in reality the very practical ones. Students of dentistry can no longer be permitted to skim through these studies and pass out into active practice with only a superficial knowledge of them. Anatomy, physiology, physics, chemistry, biology, histology and pathology are quite as necessary for them as for their brother students in general medicine. Obviously this cannot be accomplished under the plan of instruction as now given in preparation for the D.D.S. degree.

If, as Rosenow and other investigators have apparently proved, the principal sources of focal infection are found in the tonsils, the mouth, teeth, nose and nasal accessory sinuses, and if, as he also states, pathogenic micro-organisms can be harbored in these situations during the period of transmutation by which they may assume an increased virulence which makes them accountable for such diseases as ulcer of the stomach, rheumatism and its well-known chain of far-reaching symptoms, for endocarditis, myocarditis, gall-stones, and joint affections, and if in addition it can be shown, as we believe it can, that by proper care of the teeth and direction of the development of the dental arches, the pathologic conditions of both the tonsils and the nasal accessory sinuses can in large measure be controlled or prevented, then it must be accepted that full medical training is as essential for the one who has charge of the welfare of this fertile field for the propagation of disease, as it is for those who undertake to treat the general bodily manifestations thereof.

This does not of necessity mean that a student must first pursue the regular four years' course in medicine with the additional premedical and postgraduate years of studentship that are now being urged as necessary for proper training for the practice of medicine, and in addition a full course of two or three years more to complete his equipment for the practice of dentistry.

Desirable as these long years of preparation may be, and admitting to the fullest extent the value of the knowledge that might thus be acquired, there are nevertheless certain definite reasons why such preparation for the practice of dentistry is not practicable under present educational conditions.

Lest my position be misunderstood in view of this statement, and others that follow, it seems advisable for me to state that according to my belief it will no more be possible for dentistry to continue permanently as a profession distinctly apart from medicine than it was for the United States to exist half slave and half free, as recognized by Lincoln.

There must ever be some common meeting ground for all who practice legitimately every branch of the healing art. That has been, and will be with steadily growing recognition of its importance, the office of this, the representative stomatologic division of this great medical body.

Beyond a doubt there must come in the course of time the adoption and general use of degrees to distinguish the several medical divisions. Men without special training in surgery cannot be permitted to continue indefinitely to undertake grave surgical operations simply because they have qualified to the extent of a medical degree and a state board examination of general character. This is equally true of eye and ear, or nose and throat, or other limited practitioners, and they also should be required to have distinct evidence of preparation for their particular field of work.

With the continued extension of the required number of years of medical study and the very evident need of additional training for special practice, it would seem that in the course of the evolution of educational conditions there would ultimately be established a fundamental course of study which all must complete before taking up a special division of practice. The number of years required for this foundational preparation would be somewhat less instead of more than is now required for the M.D. degree, and the student after having completed this course could then in two years more of special study prepare himself for the degree which would represent his actual life work more completely than is usual at the present time. The following opinion expressed by Dr. E. C. Kirk is of interest because he is in charge of the Thomas W. Evans Museum and Dental Institute and therefore in control of the largest structure in the world exclusively devoted to dental instruction. As this institute is designed to give both undergraduate and postgraduate instruction, the views of one who is to direct its course are important in this relation.

> It seems to me to be inevitable that in the course of time a rearrangement of the medical curriculum must result from the specializing tendency, and from the increase of bulk in medical knowledge, both of which factors have made it

impossible to educate any man in medicine so that he can cover the whole ground.

That reorganization will, I think, take something of the following form: A sufficient length of time in the medical curriculum will be devoted to the training of men in all of the sciences that are fundamental to the entire field of the science and art of healing, and the termination of that phase of the curriculum will be marked by the conferring of a degree which will be educationally equivalent to the bachelor's degree in science and letters, and from the point of attainment of the bachelor's degree in medicine the student will specialize in groups of studies that will make him an efficient practitioner in some recognized special department of medicine at the termination of which he will have conferred on him his doctorate in medicine, and he will be licensed to practice only within the limits of the specialty for which he has been trained. Should he desire to acquire the right to practice an additional specialty it will be necessary for him to prepare himself by further educational work in another special department, and then secure the license to permit him to practice in that department, and so on.

It may be too much to demand such sweeping reforms in medical education until such time as in the course of natural evolutional progress these changes gradually may be inaugurated. There is, however, an immediate necessity for more thorough education of students who are to become dental practitioners in the branches of study in which their courses parallel those of their brothers in medicine. Without delay these fundamental medical sciences should be given exactly the same as for students of general medicine, and a passing mark on any one of them should be considered equivalent in every way, no matter what branch of practice may be contemplated or selected. Thus, the dental graduate will not only be more thoroughly prepared for his special division of practice, but he will also have so many definite credits toward the medical degree that he may reasonably be able to complete this course also without too much hardship. In due time it will follow that increasing numbers of the most promising students will complete their double education and take both degrees. Ultimately through the selective influence of a more enlightened laity the two degrees will be required.

Dealing practically with the educational difficulties that lie in the way of idealization in this educational formula, we find that in the absence of certain necessary but apparently impossible changes in the underlying primary courses of instruction, by the time the average student could complete his literary course with four years leading to a degree in arts, or science, and then four years in medicine, with the very necessary hospital internship of one year more, in a majority of cases he will have reached such an age that the first enthusiasm of his career will be lost. It is a grave question if the average result would be as good as it has been in the past when an aspirant for a medical degree was allowed to enter the medical college with but little if any more preparation than a high-school education. But leaving that much-discussed question for the settlement of educators now battling with it, there at least can be no question regarding the probability that at this advanced period of life it would as a general rule be quite impossible for an individual to acquire the necessary manual dexterity for successful dental practice. It would seem then that the best that can be done at the present time is so to arrange the curriculum of the dental student as to make it possible for him to have full training in the technic laboratories from the very beginning of his course, and to take during his first two years as many of the strictly medical studies as he can carry and complete in each the full regular medical student's course in these branches.

Obviously when the medical student's first and second years are crowded to the limit of average capacity, the dentist cannot do all this thoroughly and spend approximately forty hours a week in dental technic laboratories beside. Every teacher of anatomy or physiology or other similar branch can testify to the difficulties that have presented themselves when this has been attempted. By distributing the work and making the courses for the dental degree extend through four years instead of three, then with all this work out of the way, one year more could be made sufficient for acquirement of the medical degree.

Our problem is thus a problem no longer and the dentist is now a completely developed specialist in his work. Whatever the final solution of the complex professional relationship may be, it is at least apparent that the influence of this section, past, present and future, will be instrumental in its final adjustment.

The horizon from a dental and oral outlook appears wonderfully bright at the present time. The establishment of free dental clinics in many of the principal cities of the United States, examinations of the mouths of schoolchildren, lectures on oral hygiene under state appointment; endowed institutions for the care of the mouths and teeth of the poor and the systematic education and training of dental original research workers, supported by funds contributed for the purpose, are some of the many evidences that might be cited of the undisputed right of this stone rejected by the medical builders in 1840 to a place in the great temple of medical science.

Who can doubt that the cumulative effect of the long years of faithful educational service that the members of this Section have rendered has been a potent influence in the preparation of the soil in which the seeds of the various movements have given such gratifying evidence of fertility? Above and beyond all other factors, the usefulness of the work of this Section must be attributed to our secretary, Dr. Eugene S. Talbot, who has made it his life work, and who for years has directed the broadness of the scientific policy that has shaped the character of the program from year to year.

Next to this the most active influence has been the earnest cooperation and assistance of Dr. Simmons and his predecessor, Dr. Hamilton, as editors of THE JOURNAL of the American Medical Association, without which there could have been no such wide spreading of the truths of the gospel of oral medicine.

For the future the most desirable consideration appears to be a closer union between this Section and the state, county and national dental organizations such as may lead to increased cooperative activity. This would also lead to a more widely extended recognition of the value of this link in the chain of medical specialties which has been so carefully welded and forged and tried in the fire of these many years, in order that it might be relied on to hold with sufficient security its own representative division in proper relation to all other parts of the associated body of the sacred order of those whose mission is to mitigate and relieve the ills of suffering humanity, whose common purpose is to render human life happier if not longer and at least a little more worth the living.

445 Milwaukee Street.

ABSTRACT OF DISCUSSION

Dr. Joseph Head, Philadelphia: Dr. Brown's paper states clearly a fundamental thought that has been in the mind of every intelligent dentist since he began to practice. The dentist ought to be so perfect a mechanic that such perfection would be considered a goal easily sufficient for a life occupation; but the dentist also should be a thoroughly trained physician. We find that the mechanical appliances of dentistry which heretofore have been considered independent of a knowledge of medicine are now so closely associated with the health and happiness of the community that they can no longer be considered apart from pathology and therapeutics, but all these must be considered as an independent whole. For just as general medicine contains specialties, a complete comprehension of which would require twenty-five or thirty years to master, so the dentist has undertaken a specialty the complete comprehension of which would require ten or twelve years. This preliminary training is not feasible. By the time a man has studied ten or twelve years in college he will be so old that the enthusiasm of youth will be apt to be lacking and so it would be difficult for him to build up a practice. There should be, in my opinion, a bachelor's degree of medicine that *per se* would not allow any man to practice medicine, but from which he could go on to the special doctor's degree to which he would effectively confine his efforts.

Dr. F. B. Moorehead, Chicago: The discussion of any educational subject is of vital human interest and no set of men can ever determine the ultimate policy of any educational system, simply because it is a matter of evolution. This whole question that we are facing to-day in the matter of dental and medical education is simply a sign of the times. As man expands in thought and usefulness in the world, he is most surely going to demand a different type of training, and that is what this means. The question of dental education is a live subject to-day, because we are now facing a fact and not a theory. The physician and dentist have both awakened to the fact that the mouth is more important than it was thought in the past, and, therefore, the dentist must face and solve some serious problems. This calls for a different type of dental student. How to make that different type is an exceedingly difficult problem. We must educate enough dentists to care for the people and at the same time we must change from the kind of education we have given in the past and make the dental student a broader man. One step in that direction is the four-year course which I am convinced is sure to come. The first year in the four-year course should be a predental year in the university. The university method of study; the university enthusiasm and spirit will give the student a bigger and better perspective. This is the type we must have for the dentist of to-morrow. One cannot get away from the fact that, as much as we value medical training, the man who is to be a good dentist must be a good mechanic, because if he is not he cannot make his patients comfortable, and unless he makes his patients comfortable he is not serving them properly. The man who is uncomfortable is physically and mentally unfit. So we cannot lose sight of the fact that we must make mechanical dentists while developing the man of parts to take care of the medical side of dental practice.

Dr. Arthur D. Black, Chicago: I think Dr. Brown has presented the consensus of opinion of a great many physicians and dentists as to the general proposition of the future of our educational system in medicine and dentistry, and the relationship which will probably exist between dentistry and the other specialties on the one hand, and a general medical education on the other. By the process of evolution we are gradually coming to the point where, whether it is taught in the medical school or in the dental school, all men who practice medicine and the specialties of medicine must have the same foundation education. It is certainly as important that the dentist know as much of general medicine as the man who is practicing any other specialty of medicine. That it will be a great many years before the dental specialist gets that foundation in the medical school, I am quite thoroughly satisfied. The greatest problem that we have from the point of view of dental education is that of developing a different type of men in the dental school, men who will enter with the idea that they will have to study and master physiologic and pathologic problems as a basis for their technical service. In the school with which I am connected we are endeavoring to develop this type under the conditions which now necessarily exist by shifting more of those subjects which require hard study into our freshman year and diminishing the amount of technical work required during that year. We hope to impress the student with the fact that he must learn to study if he ever gets the dental degree, and at the same time we are eliminating in the freshman year a lot of men who will not study. Doubtless the higher entrance requirement, especially if this consists of a prescribed course of a year in college, will be of material aid, both in the extra year's work and the college associations. This is a problem which many men interested in college work are considering at present; that we should prescribe, previous to admission into the dental school, not only a high-school education, but definite instruction in certain branches which the academic department is better qualified to give than is the dental school.

There is, however, another question to be considered in this connection. While the dental school must develop men who will be able to solve the more complex problems involved in the relationship of mouth conditions to general health, they cannot, on the other hand overlook the greatly increasing demand for the ordinary care of the teeth. The wave of public education in oral hygiene has brought such an increased demand for the most ordinary dental service that we cannot go so fast in this matter of advancing dental schools that we will materially reduce the number of graduates and thus not provide sufficient men for the ordinary dental service.

Dr. Eugene S. Talbot, Chicago: At the time this section was established few graduates of medicine were practicing dentistry. Indeed very few were graduates in dentistry, as compared with those practicing without a degree. The friendly relations between dentistry and medicine, and between graduates of dentistry and non-graduates did not then exist. The medical profession on the other hand has always shown the greatest respect for our specialty. This is no doubt due to the fact that physicians realize that each branch of medicine has gradually advanced from small beginnings, requiring many years to reach the present state of evolution. They are willing and glad to help the youngest branch of medicine in its rise to a higher position. The Section on Stomatology has from year to year endeavored to represent the best material in the dental profession. We had been organized only a few years when we found that some of the ablest men practicing dentistry had not the medical degree, which was then necessary for membership in the A. M. A. We petitioned the general body and they immediately changed the constitution and by-laws so that practitioners of dentistry, holding the degree of D.D.S. and belonging to their state and local dental societies, could become "dental members" enjoying all the privileges of regular medical members. Again the medical profession came to our rescue and gave us a helping hand. Dental members have been stimulated to a higher sense of their relation to medicine. On the other hand, at nearly every meeting the names of physicians and surgeons are on the program. At present physicians are invited to read papers in dental societies and dentists have read papers at medical gatherings. There is no doubt that, in the future, some medical societies will recognize the dental degree for all that it implies, just as they now recognize other specialties in medicine. Recently a mutual ground between dentistry and medicine has been found, for which this section stands and which neither dentistry nor medicine are in themselves qualified to practice or teach. Those who will be the future successful practitioners of stomatology must be well grounded in the general principles of medicine. The practitioner of medicine has already begun to recognize those specialists who are abreast of the times with regard to mouth infection as a source of systemic disease. The physician will soon seek those who are competent to assist him in making an exact diagnosis. Dentists who wish to be successful in the future must thoroughly educate themselves in both medicine and dentistry. The Council on Medical Education should discourage medical schools from conferring medical degrees on dentists who have not taken the prescribed medical course.

Dr. W. C. Fisher, New York: Dr. Brown's suggestion as to the establishment of the B.M. degree is a good one. I read a paper last year entitled, "The Need of a New Degree, Bachelor of Medicine." I simply gave it as a suggestion at that time, and backed up my statements by those of Dr. Bevan of the Council on Medical Education of this Association, in which he stated that too much time was being wasted in preliminary preparation before men entered the medical schools; that we could not turn out competent medical men in twenty-nine or thirty years with the present restrictions, and that some new scheme would have to be devised whereby men could go out on their life work earlier. Professor Lowell of Harvard has said that instead of demanding the Bachelor of Arts degree before entrance to medical schools it would be better if we would incorporate some of these studies in the course leading to the Bachelor of Science degree and take one year from the four-year course, instead of spending a couple of years in studies that did not particularly relate to medical education. The man who has an excellent preparatory school education, and that does not mean two years in college, is qualified to undertake the study of the sciences of medicine and dentistry. When we speak of getting better men I am in favor of that, but I am opposed to anything that makes it so late in life before a man can acquire that degree which entitles him to go forth into the world and earn his livelihood.

Dr. G. V. I. Brown, Milwaukee, Wis.: We have been discussing subjects that my paper relates to ever since the meeting opened, and it is clear to me that, in the settlement of this question, the time element alone will not do it, but it is equally clear to me that we should not make any step in this direction until we know best what to do.

CONTINUOUS PAINLESS RENAL HEMORRHAGE AND ITS TREATMENT *

WILLIAM M. SPITZER, M.D.
DENVER

The selection of the title for this paper has been made with the purpose in view of excluding all other conditions having hematuria as an accompanying symptom, and limiting the name to those cases in which there is constant and continuous bleeding from the kidney over a considerable period of time unaccompanied by pain except such as could easily be explained by the plugging of a ureter by a blood-clot. Objection might be had to the word "continuous," for in many cases the bleeding stops either spontaneously or after the administration of medicines or of serum, or as the result of mechanical therapy directed to the kidney pelvis. The bleeding may start again and continue for weeks or months, during which time blood in varying amounts may be recognized macroscopically in the urine. The term "essential renal hematuria" is in my opinion a proper name for this condition, because it is from the kidney substance that the bleeding takes place. This name, however, should be applied only to those cases in which absolutely nothing pathologic other than blood appears in the urine, and where no lesion can be demonstrated by a competent urologist. When epithelium from the tubules or the pelvis, or when pus, micro-organisms or crystals of any type are found in the urine with the blood, or when with the Roentgen ray or by palpation a tumor or foreign body be diagnosed in this organ, or when intermittent or chronic hydronephrosis is found or suspected, it would be manifestly wrong to call such a condition essential renal hematuria just because blood is present in the urine. I shall have occasion later to refer in a more detailed manner to the subject of differentiating this condition from others in which bleeding exists.

The literature on this subject is too voluminous to review at length. To those who are interested I may refer to Kretschmer's article,[1] which brings the bibliography up to 1907, and White's paper,[2] dated 1910. The bibliography since these reviews were published is also quite extensive, and I shall only give the gist of the opinions expressed therein.

Pathologists are in apparent accord that the lesions found in renal hematuria are confined mostly to the glomeruli, and the bleeding has therefore been attributed to a glomerulonephritis. The changes are briefly as follows: while most of the glomeruli are normal, a few show absence of some of the endothelial cells lining Bowman's capsule, while others show hyaline degeneration, and some have undergone fibrosis. Kidneys that had bled for a long time present more advanced changes of the same kind with a beginning fibrosis of the intertubular tissue, in other words an interstitial nephritis—*identically the same changes which are found in kidneys which have been passively congested for some time.*

Senator[3] cites a case in which he could find no lesion of the kidney either macroscopically or microscopically, and believes the condition to be a renal hemophilia. The general opinion, however, is that if these kidneys were scrutinized more carefully the changes described above would have been found.

Much has been written to show that hemorrhage from the kidney is fairly common in lesions of that organ. Elsner[4] tabulates the cases in which blood was found in the urine as follows: Chronic tubal nephritis, 33 per cent.; acute tubal nephritis, 100 per cent.; *secondary congested kidney, 100 per cent.;* chronic interstitial nephritis, 14 per cent. In the same article he cites cases of profuse hemorrhage with no symptoms and no findings in the urine which would indicate nephritis, and yet these after a long time (in one case five years) presented symptoms or urinary findings which are expected in Bright's disease. In the vast majority of these cases the blood was microscopic, and they, therefore, cannot be dignified with the term "hematuria."

The question naturally arises, Why is there such profuse bleeding in essential renal hematuria when pathologic changes are so slight, whereas in the kidneys of patients who have succumbed to nephritis in which the lesions were a hundred times worse there had been no hematuria? Are these pathologic changes the cause of hematuria as is generally thought, or are they the result of the process which causes the bleeding? In my humble opinion the prime cause is a chronic passive congestion. Although positive proof of this assertion is still lacking, I shall essay to bring forth some facts which tend to favor this view.

---

* Read before the Section on Genito-Urinary Diseases at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

1. Kretschmer, H. L.: *Beitrag zur Frage der essentiellen Nierenblutung,* Ztschr. f. Urol., 1907, i, 490.
2. White: Quart. Jour. Med., 1910-1911, iv, 509.
3. Senator, H.: Ueber essentielle Nierenblutung und renale Hämophilie, Berl. klin. Wchnschr., 1910, p. 205.
4. Elsner: New York State Jour. Med., 1913, xiii, 144.

It is not uncommon to find blood in microscopic quantities in the urine from a kidney which is out of position, particularly when hydronephrosis is present. Occasionally even free bleeding is present. When the kidney is fixed properly in position this bleeding ceases. It is therefore fair to presume that the hemorrhage was due to a passive congestion, because while the inflowing blood-supply was not interfered with, the outflow was impaired. This would naturally come to pass in certain positions of the kidney because the caliber of the vein is more easily reduced in size than that of its companion artery for the following reasons:

1. Because its wall is thinner than that of the artery.
2. The pressure behind the inflow is many times greater than in the renal vein.
3. Because there are as a rule multiple renal arteries, while multiple renal veins are the exception.

If this passive congestion lasts a certain length of time, we shall find the identical changes that are seen in kidneys removed for essential renal hematuria. What more natural therefore than to assume that the cause of essential renal hematuria is a passive congestion?

Another reason for our belief is that these cases of essential renal hematuria cease to bleed spontaneously, and remain apparently well for varying periods, often never to recur. How may we account for this except for the explanation that the kidney after being twisted on a short pedicle so as to narrow the caliber of the vein subsequently resumes its proper position? The outflow of blood being no longer obstructed, the passive congestion clears up and the bleeding stops. In a week, a month, a year, the kidney may for some reason again be out of position, passive congestion once more occurs, and bleeding ensues.

We can thus account for the fact that Senator and others found no microscopic changes in some of these excised kidneys, while other observers have frequently found the glomerulonephritis previously described. If the kidney started to bleed as soon as it became congested and was removed before the pathologic changes could occur, it would be of course perfectly normal to the naked eye and under the microscope. In those cases, however, in which the passive congestion had continued over a longer period before removal, we would find this glomerulonephritis. If the kidneys were taken out at a still later stage we would probably find all the changes that accompany a chronic interstitial nephritis.

It seems to me that a passive congestion of one kidney can be accounted for only by a twisted short pedicle, for I can conceive of no other way, barring outside pressure on the pedicle, that would give rise to this condition. Several other observations have led me to believe that a twisted pedicle is the cause of this condition. In stereoscopic pictures of the collargol-filled kidney pelvis the organ occupies normally a certain fixed position, with the pelvis directed downward, inward and forward toward the ureteropelvic junction, while in cases in which the kidney cannot be called loose, but is nevertheless giving trouble, we have found its position so changed that the convex border instead of being almost parallel to the spinal column, is nearly at a right angle to the spine, as shown by the direction of the pelvis. In other cases again, particularly the one I recall to mind, in which a beginning hydronephrosis existed with blood in the urine, the kidney was so placed that its convex border presented toward the abdominal wall. The patient was cured by fixing the kidney, which was not loose, in its proper position.

Another argument: In cases of hydronephrosis with concomitant bleeding the latter symptom was arrested by simply fixing the kidney properly; and cases of essential renal hematuria in which no hydronephrosis was present have been cured by fixation.

The necessity of differentiating this condition from others accompanied by renal bleeding is quite apparent, but not always so easy. The microscope must show red blood-corpuscles unaccompanied by pus, micro-organisms, casts or epithelium from the kidney or its pelvis. The bladder must be free of disease, the ureter mouths normal, the flow from the ureter catheters normal, the kidney must be impalpable, or if palpable no larger than normal and it must present no irregularities to the hand. The Roentgen ray must show the kidney clearly when a pyelogram is made, and the kidney pelvis must be normal in shape and size. If the contents of the kidney pelvis exceed 10 c.c.[5] I do not consider it normal. With these restrictions we can exclude renal tuberculosis, stone, abscess, hydronephrosis and the commoner conditions in which hemorrhage occurs.

In tumors of the pelvis, by the time bleeding is continuous, one would expect epithelium in large quantities from the pelvis, together with débris from the constantly degenerating neoplasm. Continuous hemorrhage is extremely rare in tumors of the kidney until the enlarged growth has attained such a size as to be palpable.[6] Pyelitis will show besides red corpuscles other elements in large numbers in the segregated urine. Nephritis presents well-known symptoms or urinary findings which make this condition recognizable. *Besides a true nephritis cannot be one-sided.*

A diagnosis of essential renal hematuria having been established, the question arises as to its proper treatment. Ordinarily we should keep the patient under observation unless the anemia begins to give grave concern. Many of these patients never become anemic. In the meantime we may try the injection of blood-serum, a rest in bed for a short time, and a properly fitted lower abdominal corset. As to the injection of epinephrin into the kidney pelvis,[7] I consider this procedure more of a diagnostic than a therapeutic measure. If the bleeding arises from the pelvis the urine should be free from blood, or at least clearer for a short time following the injection, although it should not (theoretically) affect the bleeding in essential renal hematuria. In the three cases in which I have tried epinephrin the result was nil.

If the anemia progresses in spite of these procedures it is time to consider surgical intervention. One must, however, think long and arduously before daring to operate, and when operation is finally decided on, nephrectomy should be the last thought.

Years ago, before the advent of the present diagnostic facilities, the kidney was bisected at the operating table in order to determine whether stone or tumor was present. If neither was found the organ was securely sewed together. To the surprise of the operator the bleeding from the kidney stopped,

---

5. Childs, S. B., and Spitzer, W. M.: Roentgenographic Study of the Normal Kidney, Its Pelvis and Ureter, The Journal, A. M. A., Sept. 30, 1913, 925.

6. Barney, J. Dellinger: Reports of the Meetings of the New England Branch of the American Urological Association for the Winter 1912-1913.

7. Suggested by Kretschmer, with report of case in which bleeding was stopped, The Journal, A. M. A., July 5, 1913, p. 17.

we can refuse to call these conditions cases of essential hematuria when they are narrowed down. It is the kidney substance itself that is bleeding. It is a cloak for our ignorance to call it idiopathic renal hematuria, but it is not so to call it essential renal hematuria. Dr. Cabot doubts that the changes can be the same in these kidneys as those we find in chronic interstitial nephritis. They will be the same eventually. If a chronic passive congestion of the kidney exists, the same changes that I have described will be found, and after that a round-cell infiltration and finally an intertubular fibrosis, and thus, eventually, all the changes of chronic interstitial nephritis. Dr. Cabot also spoke of varix of the papilla. The reason I did not mention it was that I was afraid to. Harry Fenwick has described six cases and Dr. Cabot has described one. I do not see how it could be demonstrated microscopically after the kidney was excised. It may be it can be demonstrated macroscopically while operating. Lately there have been no cases of varix of the papilla reported. Dr. Squires speaks of a case of tumor of the kidney with accompanying hemorrhage, in which there was a low output of phthalein. This is as it should be. If careful roentgenograms had been taken in his case, I do not doubt that the diagnosis of tumor would have been made before the patient was operated on.

EXTRAPERITONEAL RUPTURE OF THE BLADDER

ITS SURGICAL MANAGEMENT *

EUGENE FULLER, M.D.

NEW YORK

Extraperitoneal rupture of the bladder, for a serious injury, has received little specialized study or attention, and when this can be said of a surgical condition of such magnitude it follows almost as a matter of course that its management has been, as a rule, inefficient and unsatisfactory. Some may criticize this statement on the ground that hospital statistics show that a large percentage of patients with such injuries are at present discharged from the hospital alive and with the record "recovered." Still, if one will take the trouble to investigate these patients so discharged, it will be found that almost all of them have recovered only sufficiently to be discharged from hospital, and that most of them have been left invalided—the majority, severely so.

Peritoneal rupture, on the contrary, has been carefully studied, and the surgery applied to it has been radical and eminently satisfactory. Severe violence directed against the suprapubic or perineal region may result in extraperitoneal rupture. When violence is simultaneously exerted in both these directions, the bladder has small chance of escaping severe damage. The worst cases of extraperitoneal rupture are those associated with fracture of the pelvis. In many such cases violence has been severe enough to cause general destruction and to make death inevitable. In these extreme instances surgery, at its best, may be ineffectual. It is in the cases uncomplicated by pelvic fracture that surgery has a chance to show its efficiency.

Extraperitoneal rupture generally occurs in the region of the trigonum; less frequently above, under the space of Retzius, and occasionally at the side of the vesical neck. In most instances the injury consists of one tear, less frequently of two, and occasionally of even more. Multiple ruptures usually occur in connection with fracture of the pelvis, and some of them are in the nature of punctures caused by the sharp ends of the fractured bone. If a rupture is small and perhaps incomplete, the amount of urine extravasated may be correspondingly slight, the result being simply a circumscribed area of involvement. A case such as this, treated expectantly, can leave the patient with nothing more than a corresponding area of pericystic sclerosis. The symptoms arising from such sclerosis may be slight or severe, according to the extent and position of the lesion. In the great majority of cases, however, owing to the volume of the extravasation or to a complicating secondary infection, expectant treatment invites a fatal termination. Following such injury, the extravasated fluid tends as it increases in amount—owing to a continuance of vesical distention or to pus formation from secondary infection—rapidly to extend itself, so that after the extravesical space about the site of the rupture is filled, active burrowing follows. The directions which can be taken by such burrowings are various. One point, however, seems from my experience to be reasonably assured, and that is that the most dependent part of the extravesical space—in other words, the postprostatic area in which the seminal vesicles lie—always becomes involved; primarily, when the extravesical rupture is, as is usual, at the base of the organ and secondarily, when it is elsewhere. This is a point of the utmost importance to be kept in mind, as will be seen in considering surgical treatment.

Further burrowings point outside the pelvis. They may extend behind the peritoneum—sufficiently, perhaps, to involve the perinephritic region on one or both sides—or they may mount upward, filling the space of Retzius in the middle, or the inguinal regions to either side. The extension above the space of Retzius may result in a marked hypogastric tumefaction, liable to be mistaken for an overdistended bladder. Or, following extrapelvic deviations of the pelvic fascia, the burrowing may invade the thigh, passing out of the pelvis under Poupart's ligament, generally externally to the internal iliac vessels; or it may reach the scrotum, following along and externally to the structures occupying the inguinal canal. The buttocks can be invaded, the paths being via the obturator or the great sacrosciatic foramens. These last paths, however, are rarely taken, as they are narrow and devious. Extravasations can break through the pelvic fascia into the ischiorectal space, the perineum and elsewhere, but the assumption of such directions is not to be expected unless the trauma causing the bladder rent likewise breaks down other structures which would otherwise serve as natural barriers.

There are no strikingly characteristic clinical symptoms associated with extraperitoneal vesical rupture, and it is on this account that often the injury remains undetected until inflammatory changes or burrowings in connection with the extravasation attract attention. Hematuria is present after the accident, perhaps to such an extent as to fill the bladder with clot; or it may be so slight as to cause no noticeable discoloration. When the bleeding is so slight as not to cause the formation of clot, and when the laceration does not involve the vesical neck, there is not apt to be retention. There is always some pain on urination, and this may be severe. The pain, however, associated with other parts which have been injured by the

---

* Read before the Section on Genito-Urinary Diseases at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

traumatism responsible also for the bladder injury, may be so prominent as to divert attention, thus causing the discomfort connected with urination to escape observation. There is apt to be febrile disturbance, generally marked. As extravasation progressively develops, attendant symptoms arise, and it is these secondary symptoms, as stated, which frequently first lead to a realization on the part of the surgeon of existing conditions.

Diagnostic considerations as regards extraperitoneal vesical rupture vary greatly in accordance with the time which has elapsed after the accident before surgical aid can be rendered. When a surgeon sees a case promptly, the differential diagnosis between anuria, intraperitoneal rupture and extraperitoneal rupture is most important. When there has been considerable delay, time itself, for better or worse, has generally solved these questions, but left in all probability others. When a case indicating bladder injury is seen promptly, the patient should be instructed to urinate. If he can do so naturally and the urine is free from blood, the chance is that there has been no vesical injury, and expectant treatment, as far as the bladder is concerned, is warranted. If he cannot urinate, a sterile catheter should be passed. If no urine and no blood is thereby revealed, the probability of anuria due to shock is justified. The abdomen, however, should be carefully watched, and if, at the end of a brief interval, on a second introduction of the catheter no urine should be found, a measured amount of sterile normal saline solution should be injected into the bladder. If the volume injected is caught in the return flow, well and good. If not, the abdomen should be promptly opened and an intraperitoneal rent looked for and closed, if found. If there be no intraperitoneal injury, inspection should then be made to find if there exists any evidence intra-abdominally of extraperitoneal vesical injury.

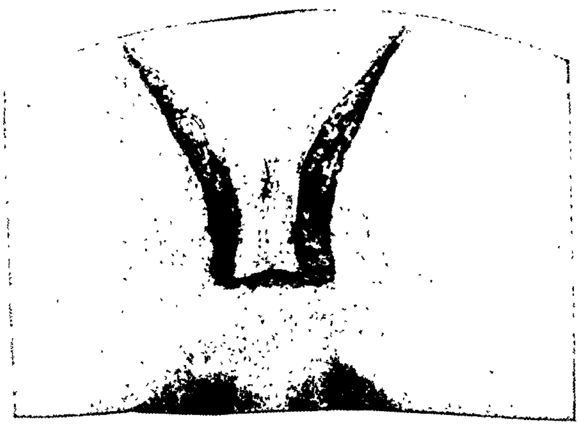


Fig. 1.—Line of incision.

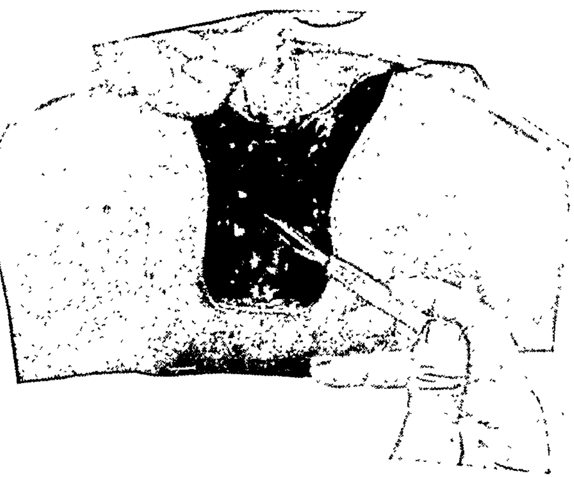


Fig. 2.—Perineal dissection.

To aid in this inspection, in case there should be no evidence, a catheter can be introduced and the distention of the bladder watched as fluid is injected. The abdominal wound should then be closed and the bladder opened suprapubically and drained. Such prompt drainage may anticipate any extraperitoneal extravasation, allow the bladder to heal, and obviate a secondary operation such as will be necessary should there be any marked degree of extravasation. If the bladder contain blood clot, or if there be retention due to an involvement by the trauma of the bladder neck or deep urethra, then suprapubic cystotomy should be promptly performed. The bladder, on being opened, should be emptied and inspected, to locate injury. If there be then any indication of rupture involving the peritoneum, the abdomen should be opened as a secondary step in the primary operative procedure, and such a rent closed. In any event, suprapubic vesical drainage should be established. If suprapubic cystotomy discloses extravesical rupture and there is good reason to believe that the bladder has been opened before urinary extravasation to any degree has had time to take place, nothing further should be done. After such operation it may be advisable—even in case there be doubt regarding the question of extravasation—to delay operating to insure extravesical drainage until symptoms develop indicating the necessity for such further procedure.

It is the cases of extraperitoneal vesical rupture that have not had the benefit of prompt surgery immediately following injury—a prophylaxis, as it were, against urinary extravasation—which especially deserve notice, as they represent the large majority. Before considering the question of how these should be surgically treated, it may be well to remark on the inefficient treatment so generally employed, for it is from the study of bad results that good ones can be appreciated.

In most instances in which extravasation has not burrowed sufficiently to produce external manifestations, it will be found that the bladder has been opened perineally or suprapubically, or perhaps in both directions. When burrowing has been extensive enough to cause surface evidence or much localized pain, an incision into such part or direction is common, followed by the liberation of pent-up fluid and the maintenance of drainage. Although late cystotomy does little and perhaps no good, incision into the area involved by the extension of extravasation is very beneficial in that it probably saves life. Still, its fault is that it does not cure. This is because such incision only partially drains the area. Another error into which those cutting into such burrowings may fall is observed in connection with cases in which the burrowings have been sufficiently extensive to point outside the pelvis, far from its original source. When such a pus cavity is opened, the false inference may be drawn that a nearby part is the source of suppuration and consequently requires surgical removal. As an illustration, the head of the femur has been resected, the suppurative process having in reality burrowed out of the pelvis by way of the great sacrosciatic foramen; or a piece of the sacrum has been chiseled off, on the supposition that disease there was the original cause.

In a paper[1] which I read in 1902 and which represented my early surgical experience, I made the following remarks:

> The surgical management of suppuration in this part or elsewhere lies in the establishment of free drainage. In order that drainage be free, it must be dependent. As the pelvic cavity is deep, the surgical problem of effecting dependent drainage arises. . . . In each individual case there are two surgical principles to be determined in connection with the establishment of the drainage: first, the location of the dependent pocket of suppuration, and, second, the dissection to reach that pocket. . . . No dependent dissection should be attempted till the pocket has been located. . . .

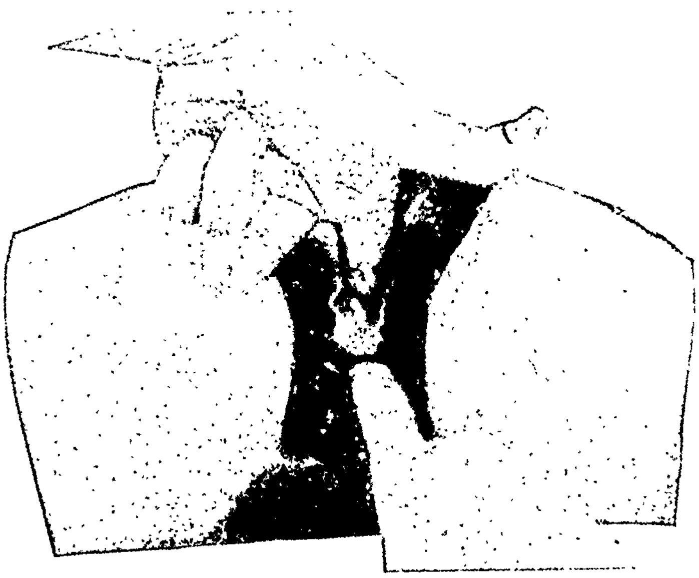


Fig. 3.—Separation from the rectal wall.

> The second step in the surgical procedure is the dependent dissection. This dissection should open a perineal path and expose the lymph space between the prostatic capsule and the rectum, the urethra being left intact. In making this dissection, the dorsal position and the Zuckerkandl incision can be employed; but what is far superior is the knee-breast position and the incision which I devised to expose the seminal vesicles and the prostate, a description of which has been published in The Journal of the American Medical Association, May 4, 1901.

This early opinion, though thoroughly sound, I have since seen fit to modify as regards procedure, in that I now make the second step the first, while the original first step becomes the second. This change simplifies matters and avoids exposing the patient to what often resulted in a needless degree of dissection in locating the pocket in connection with the original first step of the operation. As all these extravasations tend speedily to reach the most dependent extravesical space, that space should first be opened. It will then be found a much simpler matter to trace with the finger or probe the track of the burrowing from its dependent position to its limit of extension, than was the vice versa original procedure. When the limit of extension is located, an external incision can be made down on the end of a probe and drainage tubes introduced. It may be that burrowings have taken place in more than one direction, in which event more than one external connecting incision will be necessary. Drainage tubes should be serrated and of sufficient length to pass in at the external connecting incision and out at the entrance to the dependent incision.

The accompanying photographs illustrate the performance of the dependent dissection. As the seminal vesicles in these cases are embedded by infiltrate, it is wise to open them just as would be done in the performance of a regular seminal vesiculotomy. The patient is in the knee-chest position.

Figure 1 shows the line of incision. In this photograph, although the depth of the incision is still superficial, the marked tendency to retraction of the tissues is clearly evident. This tendency to retraction, intensified by the position of the patient, is an element of great aid to the operator. The converging cuts on either side of the rectum are made long so that the rectum can freely retract as the perineal dissection liberates it from its natural anchorage.

Figure 2 indicates the method of perineal dissection. Note the marked retraction of the rectal structures, the lower rectal flap having already retracted fully two inches. This retraction is sufficient to expose the prostate on lifting the rectal flap, making that organ a superficial rather than a deep-lying structure. In making this dissection, the forefinger of the operator's left hand is maintained in the rectum to serve as a guide while the dissection progresses. While so operating, the side rather than the blade of the scalpel is used, so as not to cut into the muscular structure of the perineum, the path of dissection lying just outside the muscular perineal body and inside the perineal fascia. By so doing, and by starting the transverse flap well below the margin of the anus, the rectal sphincter and the blood-vessels encircling that organ escape injury. In fact, so little injury is done to blood-vessels that it is exceptional when it is found necessary to ligate a single vessel through the performance of the entire operation. As the dissection proceeds around the perineal body, that structure tends of itself to retract downward. The fascia propria of the pelvis, with its median raphé, is then exposed, and when this is cut through the bursal space separating the rectum from the prostatic body is entered.

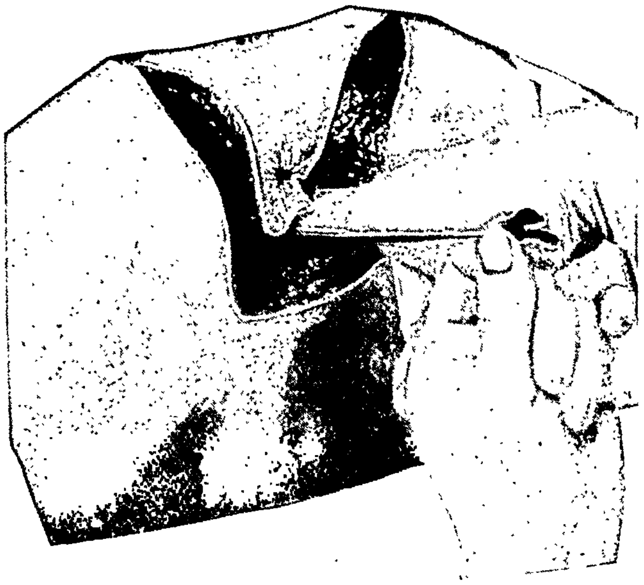


Fig. 4.—Placing the grooved director.

Figure 3 shows the next step in the operation, the separation of the rectal wall from the underlying prostate, the seminal vesicles and the bladder floor. After the fascia propria of the pelvis has been divided, the scalpel is put aside and the right forefinger of the operator is introduced into the bursal space just mentioned, and the process of separating the rectal wall from the prostate and seminal vesicles by digital manipulation is undertaken. In accomplishing this, the right finger-tip should be bent down to guard against perforation of the rectal wall, while the left forefinger is still maintained in the bowel as an aid in the same direction; for should the right finger impinge too closely on the bowel wall in accomplishing its separation, the left finger gives the operator immediate warning. In the performance of this digital separation it may be that fibrous bands are encountered, too dense for separation by the finger-tip. If such is the case, the scalpel guided by a director can be introduced to cut the band, after which the digital separation is resumed.

---

[1] Fuller, Eugene: Drainage of Extravesical and Extraperitoneal Suppuration of the Male Pelvis, The Journal A. M. A., Oct. 25, 1902, p. 1021.

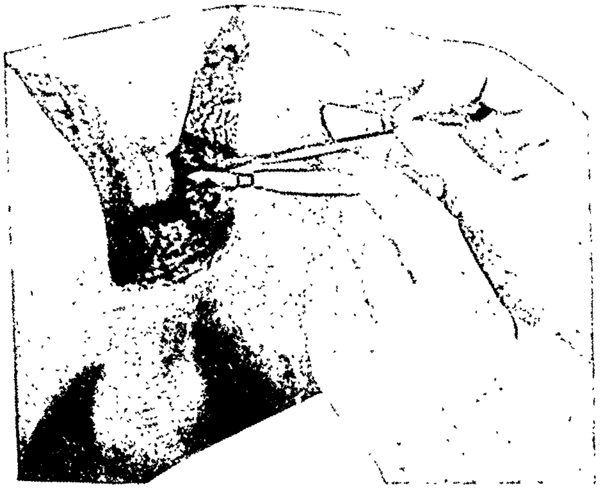


Fig. 5.—Passing the knife.

Figure 4 illustrates the putting in place of the grooved director under the guidance of the operator's right forefinger. After the rectal wall has been detached from the underlying seminal vesicles, the operator places his right forefinger-tip on the apex of a seminal vesicle (in the photograph, it is the apex of the right organ), and maintains the finger-tip in that position, while with the left hand the grooved director is passed under and along the right forefinger till its point reaches the apex of the seminal vesicle under the right finger-tip. In this position the director is firmly held while the right forefinger is withdrawn.

Figure 5 shows the next step in the operation, which is the passing of the knife along the groove of the director. After the knife reaches the apex of the seminal vesicle at the point where the end of the grooved director is fixed, its shaft is lowered so that the belly of the blade lies against the seminal vesicle, and a cut of an inch and a quarter to an inch and a half is made longitudinally into the seminal vesicle so as to lay that organ open its entire length. Often the first cut may not be deep enough to accomplish its purpose. If a digital examination shows the cut to be incomplete, the director should be replaced and a second cut made in the line of the first. Sometimes, especially in sclerous cases, three or more cuttings may be required before a thorough opening of the seminal vesicle has been accomplished. Should it be desired to open the floor of the bladder for drainage, the end of the director should be placed against the wall at a point midway between the seminal vesicles and far enough back to be in a line with their apices. The knife should then be slipped along the groove and the bladder wall perforated, after which the director should be immediately slipped into the bladder and maintained there to guide the introduction of a drainage tube.

Figure 6 shows the method of packing the cavities of the seminal vesicles and the deep limits of the dissection. Two strips of gauze are employed, one for each side. Here the packing is being introduced into the right opened seminal vesicle, the right forefinger of the operator being maintained in the opening to crowd in and arrange the placing of the gauze as it is being pushed in by the operator's left hand, aided by a blunt-ended clamp. In placing the packing, a space should be left between it and the rectal wall for the drainage tubes.

Figure 7 shows the two drainage tubes in place above the packing, the lower portion of the dissected flap having been fastened in place by lateral sutures.

Figure 8 shows the completed operation previous to the placing of the dressing. The two ends of the gauze packing are left protruding, to facilitate removal. Safety pins have been passed through the tube ends, and to these have been attached strips of adhesive plaster, so as to guard against a premature slipping out of the tubes.

The following clinical reports serve to illustrate the surgical procedure advocated in cases coming under observation long after the original injury:

CASE 1.—Man, aged 23, on entering the City Hospital could not walk without support, nor could he void urine. All the urine leaked away through a perineal sinus. There was constant and severe pain in the region of the pelvis. Several months before, while working in a mine, his pelvis had been caught between two cars. Retention followed the pelvic injury. He was sent to a local hospital, where a perineal opening was made, and it was out of that opening that the urine was passing when he entered the City Hospital. Roentgenoscopy revealed that there had been a fracture of the pelvis. The injury had also caused thorough disorganization of the deep urethra, so that complete occlusion had resulted. Rectal examination showed marked tumefaction of the postprostatic tissues, and any pressure there caused extreme pain. The patient was put in the knee-chest position and the seminal vesiculotomy dissection was made. Before this dissection had extended beyond the prostate, the anterior limit of the dependent area of extraperitoneal extravasation was opened, and when completed a large chamber was exposed occupying the entire postprostatic space. Com-

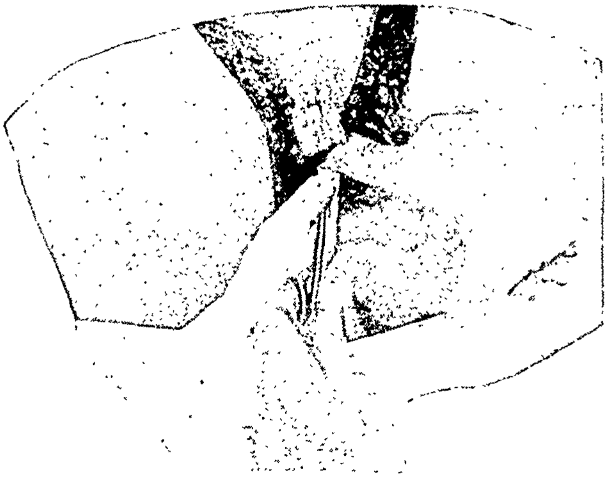


Fig. 6.—Placing the packing.

municating with this chamber was an opening through the trigonum sufficiently large to admit the forefinger. To the right of the vesicle neck, the chamber extended upward into the space of Retzius. A suprapubic counter-opening was consequently made, and a connecting chamber occupying the space of Retzius was thereby exposed, and another vesical rent found connecting the bladder cavity directly with the space of Retzius. From the space of Retzius, the burrowing had extended to the left under Poupart's ligament and into the upper thigh. An opening was consequently made into the upper thigh so that a drainage tube from the suprapubic opening could be there passed out. A suprapubic drainage tube was also passed through the space of Retzius to the right of the vesical neck, through the postprostatic space, and out at the base of the perineal dissection. Another good-sized tube was passed along the perineal incision and into the bladder through the rent in the trigonum. This was for vesical drainage. The operation was followed by marked relief.

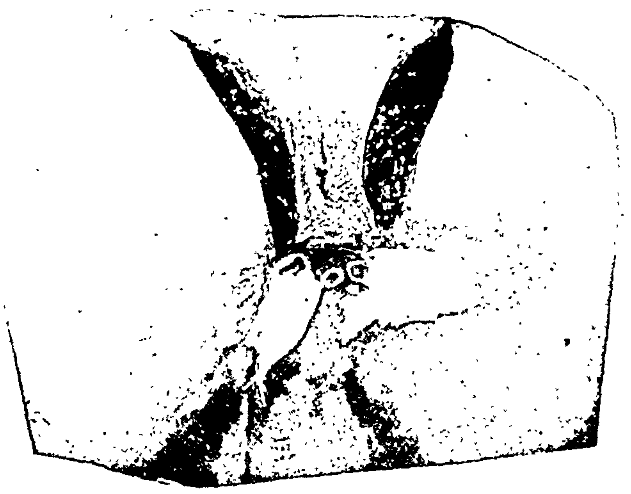


Fig. 7.—Drainage tubes and packing.

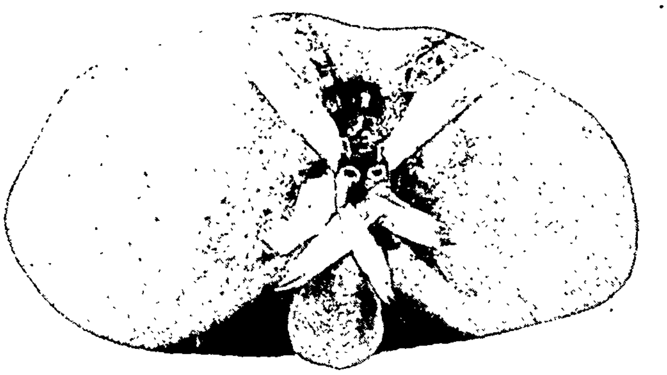


Fig. 8.—*The completed operation.*

Two months after the first operation the deep urethra was resected and made pervious. The patient now—four months after the first operation—is about, using a cane, in comparative comfort. The suprapubic opening into the space of Retzius has not as yet been allowed to close, so as to afford a vent in case of persisting suppuration. The flow of urine, likewise, has not yet been diverted from the perineum to the urethra. The perineal opening can, however, be closed by a slight plastic operation whenever it may be deemed advisable.

Case 2.—A man, aged 31, entered the City Hospital with a history that two years before a log had fallen on him, causing rupture of the bladder, together with laceration of the deep urethra. Suprapubic cystotomy had, at the time, been performed. Eight months later, a perineal section had been performed to rid the patient of traumatic stricture formation and to avert threatened retention. His chief complaint on entering the City Hospital was impotence, which had been complete ever since the accident. On this account, his wife had left him. There was also marked pain in the sacral region after much exertion, together with loss of force to the stream on urination. Rectal feel showed marked infiltration and tumefaction of the postprostatic tissues, digital pressure causing severe pain. There was still a marked traumatic stricture involving the deep urethra. Before the accident the patient had been normal and vigorous sexually, and there was no antecedent history of gonorrhea.

The opinion being held that the postprostatic tumefaction was due to urinary extravasation, the patient was put in the knee-chest position, and the seminal vesiculotomy dissection employed. A burrowing extravasation cavity, in which lay both seminal vesicles, was opened. This cavity was found to communicate with the bladder by way of a rupture through the middle of the trigonum. This rupture was large enough to admit the tip of the forefinger. The extravasation had not burrowed beyond the confines of the postprostatic space. The involvement of the seminal vesicles evidently accounted for the impotence. Both these organs were opened, as in an ordinary seminal vesiculotomy, and their cavities, as well as that of the extravasated area, packed. A perineal tube for urine drainage was passed into the bladder through the opening caused by the rupture.

Two months after this operation, the deep urethral stricture was resected. This patient is now completely well, has regained his sexual stamina, and is at work as a laborer.

Case 3.—A man, aged 40, came to hospital with the history that seventeen years before he had fallen fifteen feet, striking his sacrum against a wheel. Before the accident he had been strong, and up to that time he had never had sexual intercourse. After the accident he was in bed for a long time, and had great difficulty with urination, together with pain, but as the accident had occurred seventeen years before it was impossible to obtain exact clinical data. Four years after the accident he married and had one child. He had never been well since the accident, owing to severe sacral and suprapubic pains, increased on exertion. These pains were often accompanied by chills or chilly sensations. The sexual function had never been strong since marriage, and for many years he had not indulged in coitus at all, owing to the fact that the act served to exacerbate his pains and chills. At present he had no complaint regarding urination, and the urine was normal. He had a great dread of urethral instrumentation, as such treatment caused him much after-suffering from an exacerbation of his symptoms. Neurasthenic symptoms were marked. In fact, neurasthenia had been the usual diagnosis given to account for the symptoms. Rectal feel showed the postprostatic space filled with scar tissue which involved both seminal vesicles. Digital pressure against this region provoked great pain and could not be tolerated. There was no stricture. The cystoscope showed little except that in the region of the trigonum the blood-vessels were enlarged and irregular. There were also in that area patches of scar tissue.

The patient was put in the knee-chest position and the seminal vesiculotomy dissection employed. In this case no actual extravasation cavity was found, probably owing to the fact that the accident had been so long ago; but the dense cicatrix was cut through, the floor of the bladder liberated, and also the seminal vesicles, after which both these organs were opened. The space was packed and drained.

Complete recovery, with relief of all symptoms, followed.

252 Lexington Avenue.

ABSTRACT OF DISCUSSION

Dr. A. G. Rytina, Baltimore: In connection with Dr. Fuller's paper I will mention a case that is perhaps a surgical curiosity, and I report it to find out if any one has seen such a case. About six or eight months ago a young man entered the Physicians and Surgeons' Dispensary complaining of burning on urination. While one of my assistants was introducing the cystoscope into the posterior urethra the patient gave a sudden lunge. My assistant, in determining the bladder capacity, noted that it was very large, about 1,000 c.c. He then allowed the fluid to return and in all about 600 c.c. returned. The man was asked to strain, and a small amount of fluid feces came back. The assistant suggested that he had gone through into the rectum, and to make sure he put his finger into the rectum and felt the back of the cystoscope. I pleaded with the man to undergo an operation but he refused. I notified the resident to call me up as soon as the man came in. Next afternoon the resident called me up, saying the man was feeling fine and was passing perfectly clear urine. I kept the man in bed and perfectly quiet for two weeks, and from that time to this he has passed perfectly clear urine and has never had any trouble from his accident.

Dr. D. N. Eisendrath, Chicago: I have had quite a large experience with both extraperitoneal and intraperitoneal rupture of the bladder, and I believe that if I had followed Dr. Fuller's suggestion my mortality probably would have been about 75 per cent. instead of about 10 per cent. in twelve cases. The only objection I have to Dr. Fuller's method of drainage is that it is altogether too radical for a man who has had as severe an injury as a recent fracture of the pelvis or a recent extraperitoneal rupture of the bladder. Every one of the cases I have had has been diagnosed within the first seventy-two hours, and it sufficed in all those cases simply to drain the bladder through a tube suprapubically, without any attempt to repair the rent in the bladder, and to drain the extravesical space through suprapubic drainage. With regard to the diagnosis, the chief point that I have always impressed on house surgeons is that if a man has met with any injury involving the region of the pelvis, the first thing the surgeon should do is to catheterize that patient if he can; if he cannot catheterize him, not to use any force at all, but to percuss above the pubes and if there is any dulness there to send word to someone at once who is more skilled in catheterization than he. If both then find that they cannot catheterize the patient, this means a rupture near the trigon, usually at about the junction of either the fixed portion of the urethra or at the anterior portion where it is attached to the symphysis pubis. If that is the case, the best way to do is not to try to do an external urethrotomy, but to do a retrograde catheterization, no matter whether the rupture is of the extraperitoneal portion of the bladder or of the deep urethra. It is better not to waste time, but to go in from above, and if one finds a rupture of the urethra one can retrograde catheterize the patient much more quickly. If one has an extraperitoneal rupture of the bladder the bladder can thus be drained.

Dr. Eugene Fuller, New York: Dr. Eisendrath seems to be doing with his patients exactly what in my paper I said was generally done with them, that is, they are discharged from the hospital crippled, of no earthly use; not dead, but they might as well be. If you get a pus pocket outside of the bladder in which material has extravasated how is a patient going to get well by catheterizing or by fussing with him? He does not get well. This radical operation of mine is not horrible because you do not as a rule have to tie a blood-vessel in its performance and it is of slight danger. I have done this supposedly horrible dissection over six hundred times with but one death and that person died because he had granular kidneys. An operation that is terrible ought to have a bad record, and this one has not. It is technical. There is no use jumping on it because it is technical, and trying to sidetrack it on that account. It is far better to take a cadaver, do a little dissecting, thus mastering the technic and then to try the operation. The whole thing is to get these patients well. These cases belong to a neglected branch of surgery, and the old way of doing nothing with them except seeing that they have a pervious urethra and leaving them alone does not cure them. The cases I reported were in a lot of derelicts who had been the rounds. The patients had been in four or five hospitals when I took hold of them, and I cured them. Dr. Pilcher wanted to know if I so treated these patients at the time of the injury. These are the cases in which the injury had taken place a long time before and in which extravasation is seen. If one gets a man with a rupture of the bladder immediately after the injury one naturally then would open suprapubically and drain as I stated in my paper. Then one probably would get ahead of the extravasation and prevent its occurrence.

THE MECHANICS OF A PLASTER-OF-PARIS CAST IN FIXED LATERAL CURVATURE OF THE SPINE *

E. G. ABBOTT, M.D.
PORTLAND, ME.

It is absolutely necessary to know the exact position of the anatomic parts entering into a deformity in order to correct it.

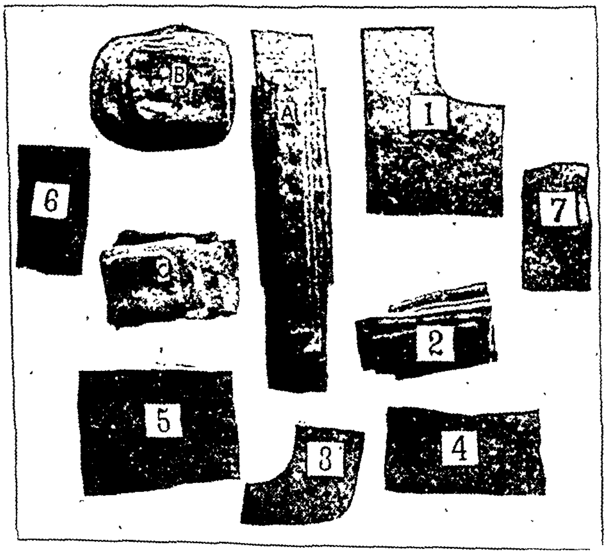


Fig. 1.—Pads used in the treatment of scoliosis.

Overcorrection or the reversal of the deformity is necessary to effect a cure. Overcorrection is obtained by pushing the parts back through the same arc which they passed when the deformity developed, and thence through a similar arc to a position exactly opposite to that of the original.

In order to know through what arc the parts travel in the development of a deformity, they must be traced from their normal positions to that of the deformed.

Scoliosis is developed from a normal physiologic position and becomes pathologic only when the individual is unable to reverse this position at will. Scoliosis in its beginning and through its development to a certain stage is a position of flexion, plus lateral bending plus rotation of the bodies of the vertebrae toward the convexity of the lateral bend.

It is first a normal physiologic position assumed at will, becomes pathologic after habitual assumption and may be easily created in the normal spine.

With a knowledge of the position of the parts in a normal spine, the position of the parts in a scoliotic spine and the arc through which they have traveled in the development of the deformity, it is possible to overcorrect or reverse the deformity, if it is borne in mind that these parts must pass back over the same route which they traversed to a normal position and thence through a similar arc to a position opposite to that of the original. Now the position must not only be understood in a general way, but an exact knowledge of every case must be obtained in order to apply intelligently the necessary force to reduce the deformity. Without this exact knowledge of the position of the parts in scoliosis, the force may be applied so that the deformity is increased rather than lessened.

---

* Read before the Section on Orthopedic Surgery at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

The spine must be flexed, pressure made laterally against the curve and against the rotation, and if this is done with precision the spine must go into the overcorrected position, unless it is too firmly fixed in its deformity.

The principle is the same in all cases, but its application differs. Let us note at this point what, in a general way, is the position of overcorrection, before proceeding to analyze just how this may be obtained. Using the familiar figure of a boy sitting in an improper attitude at a desk writing, it may be seen that the position is that of flexion, plus lateral bending, plus rotation of the bodies of the vertebrae toward the convexity of the lateral curve, and there may be one or two curves according to the position of the pelvis.

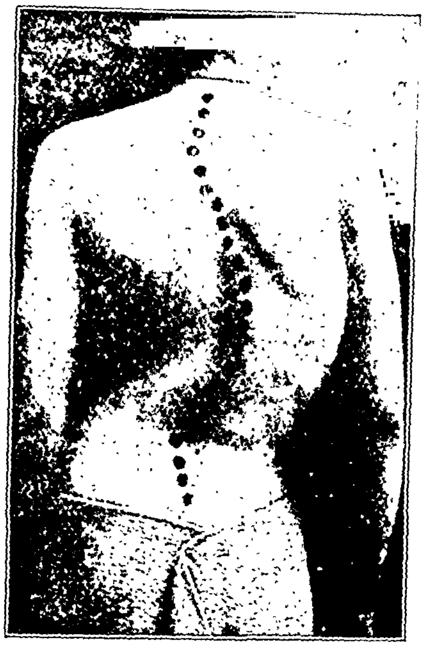


Fig. 2.—Patient with scoliosis.

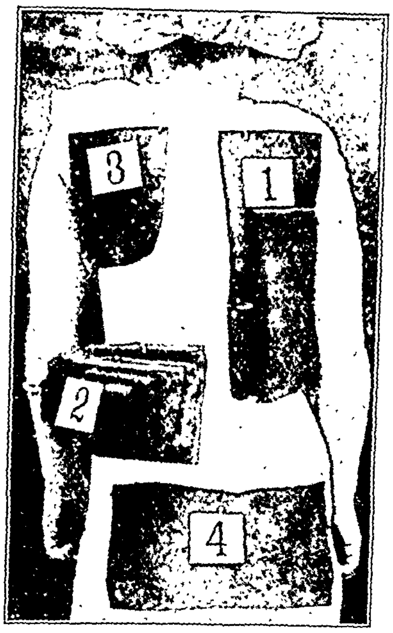


Fig. 3.—Showing method of application of posterior pads.

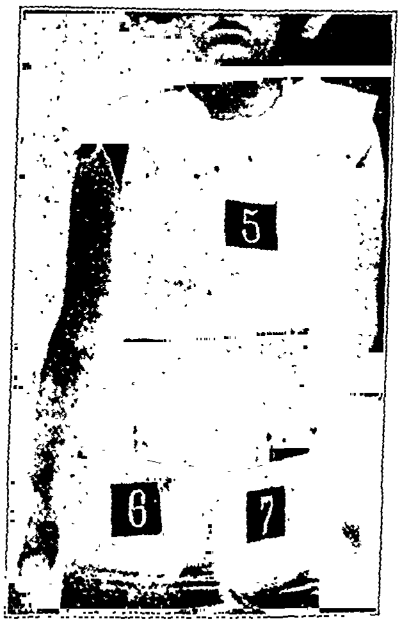


Fig. 4.—Application of anterior pads.

Now, in order to reverse this position we simply turn the child to the other side and the parts reverse their position, but the flexion remains unchanged. This is the position of scoliosis, be it physiologic or pathologic, and all other changes are secondary.

After the patient is placed in the position of flexion and the straps applied to pull the parts toward the position of overcorrection, the corset must be so shaped that the pressure against the fixed points continues to force the parts into an overcorrection. It is scarcely necessary to state that various forms of apparatus for pulling the patient into position might be used, but the exact position into which the patient must be forced must be borne in mind, and it is the application of a corset which will allow of reduction of the deformity that seems to present some difficulties. The corset must be heavily padded with saddler's felt, cut in suitable pieces according to the size of the patient. The technic may, perhaps, best be described by diagrams and illustrations showing just where force is applied, the fixed points in the corset and the necessary pads both permanent and removable used in the corset. Figure 1 represents all that are usually required, and the permanent ones, or those left in the corset, against which pressure is borne, are numbered and those used to shape the corset are lettered.

The positions which they occupy may be shown by placing them on a patient with scoliosis (Fig. 2). The permanent pads are placed posteriorly as shown in Figure 3, and anteriorly as in Figure 4. The posterior ones are fixed points in the corset. Pad 1 is composed of two pieces of felt placed over the bulging ribs, and so cut that it covers the shoulder blade and passes beneath the axilla. Pad 2 is placed in the lumbar region. It consists of several layers of felt so that firm pressure may be made against the left lumbar curve. Pad 3 is placed under the axilla and over the left shoulder. Pad 4 is placed across the sacrum. These four pads, 1, 2, 3 and 4, are points against which pressure is made and are never changed.

On the anterior surface of the body there are three pads, all permanent. Pad 5 passes across the thorax and Pads 6 and 7 are placed over the anterior superior spinous processes (Fig. 4). The removable pads are placed as in Figure 5. The long pad marked A is about 4 inches in thickness at the center and tapers at the ends. It is for the purpose of allowing more flexion. Pad B is placed over the concave ribs, and shapes the corset so that rotation may be overcorrected in the dorsal region. Pad C is placed in the lumbar region and allows the lumbar spine to overcorrect.

Three undervests, or coverings, are placed on the body. The permanent pads are put between the first and second cover and the removable pads between the second and third. The covers hold the pads in correct position, and also allow of easy removal of those to be taken out after the corset is finished.

Figure 6 illustrates the necessary straps to pull the patient into the proper position in a case such as shown in Figure 1. Strap 1 passes around the axilla, making lateral traction on the upper end of the dorsal curve. Strap 2 encircles the thorax, making traction on the ribs which join the vertebrae at the apex of the dorsal curve. Strap 3 makes lateral traction on the lumbar curve at its apex. Strap 4 passes around the pelvis and pulls against the lower end of the lumbar curve. Strap 5 is a rotator which is attached to Strap 2, and passes across the thorax and directly back. Strap 6 is attached to Strap 1 and pulls the low shoulder forward and upward. Strap 7 passes over the high shoulder and pulls it backward. Strap 8 is attached to Strap 3 and is a rotator which pulls against the thick pad of felt marked 2. Strap 9 tilts the pelvis. With the pads placed on the patient as indicated in Figures 3, 4 and 5, and the straps applied as in Figure 6, traction is made on them and the body is pulled in the direction of overcorrection. The plaster corset is then applied. As soon as the plaster hardens, windows are cut as in Figures 7 and 8. The window or slit in Figure 7 is for the purpose of inserting felt pads to induce further flexion. The windows in Figure 8 are over the removable pads B and C, and allow the depressed ribs and lumbar region to be pressed backward. At Point 1 (Fig. 8) the spine is 4 inches in front of the cast, that is, the spine may be further flexed 4 inches before it comes in contact with the plaster. Points 2 and 3, same figure, are fixed points which cannot change. When felt is inserted over the thorax through the slit or window (Fig. 7), the spine flexes further, carrying with it all of the body except those parts under Points 2 and 3, Figure 8, and if the deformity is not too extreme, it is possible to obtain overcorrection by inserting enough pads over the thorax to force the spine against the corset at Point 1 (Fig. 8). Should the lateral curves still remain, the corset is cut away along the dotted lines under the axilla and hip, and pads are inserted at 4 and 5.

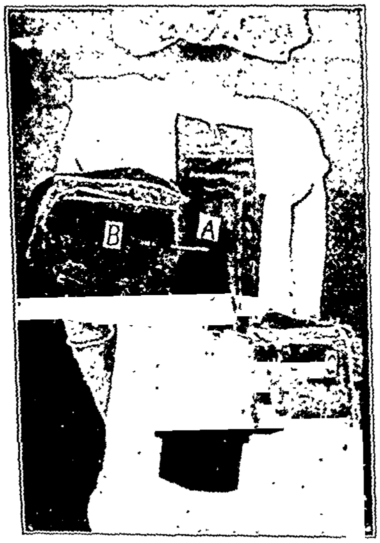


Fig. 5.—Showing position of removable pads.

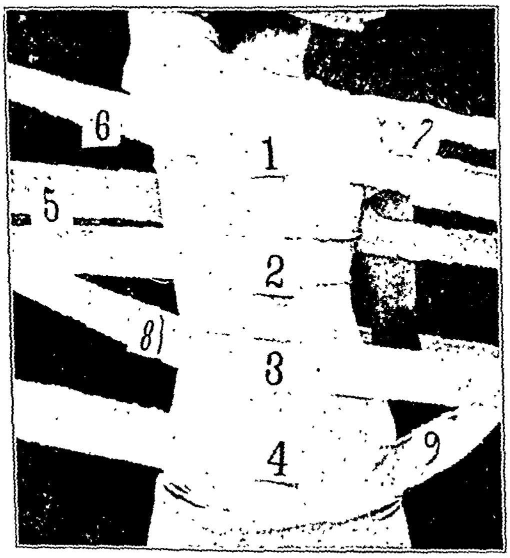


Fig. 6.—Straps used for pulling patient into position.

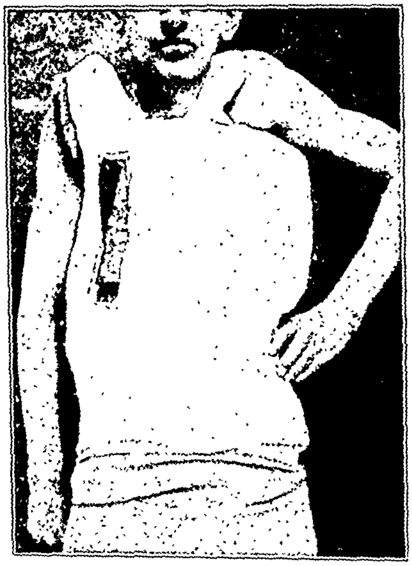


Fig. 7.—Showing window or slit for inserting felt pads to induce further flexion.

Care must be exercised that the traction is applied at the exact point needed. For example, if force is used against points which are apparently opposite the part of the curve against which pressure is needed, the deformity is made worse. It must be borne in mind that the ribs run downward as well as outward, and pressure should be made at proper levels.

As already stated, the position into which the patient must be placed in order to overcorrect must be thoroughly understood in every case, and the force must be applied with precision. Unless such precaution is taken, more harm than good may be done.

ABSTRACT OF DISCUSSION

Dr. Paul A. McIlhenny, New Orleans: I have not been able to get results, except in those cases in which we have what Dr. Abbott terms a "total scoliosis," or one in which there is only a slight curve in the lumbar region. I have followed, as closely as I could, instructions given in the various publications that I had access to; and I have obtained results in the moderate form of dorsal curve. In the marked cases of structural scoliosis, however, with a marked compensatory curve in the lumbar region, I have found an insurmountable obstacle, so far as I was concerned. Perhaps I am at fault. Other men have obtained these results in the double curves, as Dr. Abbott has, but I have not. There is some point in his technic, I believe, that I have missed; and I should like to get some light on why I cannot get a reduction of that compensatory curve or a correction of the primary curve, when I can get it in what we may term "total scoliosis" of the structural type.

Dr. Roland Meisenbach, Buffalo, N. Y.: Now that we are getting the results in the average type of structural lateral curvature of the spine, it will be necessary for us to consider more at length what can and what cannot be done for the severer types, which are so very common and which certainly require attention. In view of the recent progress in the treatment of scoliosis and the gratifying results obtained by Abbott's method in the average type of fixed lateral curvature, we should not give up the severe types in despair, but should attempt to do something for them. We must realize that the spine is not the only essential part of the patient, but that cardiac pressure, lack of excursion of the ribs, nerve pressure and visceral disturbances should be thought of. In the compound curves, the condition is even more exaggerated, and if carefully followed, much good can be done the patient, not only so far as the general symptomatology is concerned, but also in the actual anatomic straightening of the spine. The questions arise: How far shall we correct, and how much traction shall we apply, and what is the patient's endurance for correction? The last can only be determined by a thorough examination by internists, bacteriologists and pathologists, and by the orthopedist. I have had this emphasized many times, and I seldom undertake a case of a severe type unless I have had complete records of the patient made by a number of men. In the average and severe types more correction can be obtained, with less danger to the patient, if this method is followed carefully by the orthopedist. Not only can more correction of the spine be obtained, but such symptoms as muscular twitching and indigestion will rapidly disappear. I further believe that the cases should be taken early, and also in the severe types should be vigorously treated and not be allowed to become utterly helpless, even though the spine is not replaced in a perfectly straight line.

Dr. **Henry W. Frauenthal**, New York: I have used the Abbott method in a great many cases and from my experience I think that most men expect to get results too quickly. That is what I tried to do in the beginning, and I found that I was exerting too much pressure. This accounts for the fact that Dr. Abbott has increased the thickness of his pads to 2 or 3 inches. I think that if we have more patience and do not expect a perfect result in too short a time, and if we manipulate the backs very much as we do club feet that we try to correct without cutting, some of these bad backs will make a remarkable recovery. I have treated about a hundred and have got much better results than by any other previous method.

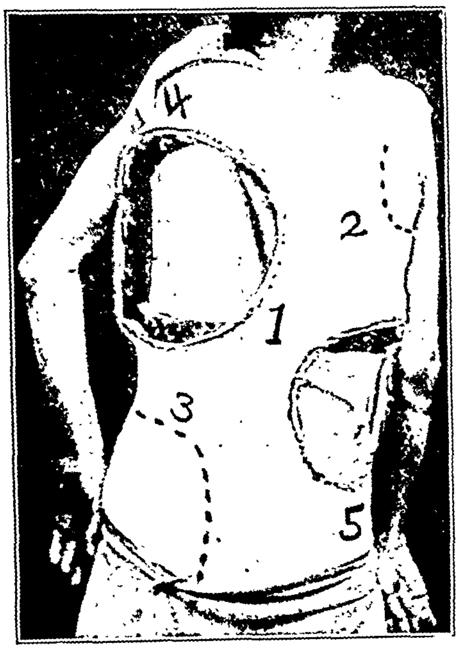


Fig. 8.—Showing windows for the insertion of pads.

Dr. **H. Winnett Orr**, Lincoln, Neb.: Having had the privilege of acquiring this method directly from Dr. Abbott, two years ago, I have treated more than fifty patients since then by the Abbott method. One thing that I have learned from my experience in these cases is that it is more important to begin an Abbott treatment with a thorough comprehension of Dr. Abbott's principles of pathology and treatment than it is to endeavor to use exactly the same technic as he employs. Dr. Abbott has himself obtained better results with the method up to the present time than has anyone else who has tried to follow him. I venture to say that by mastering the principles of the method and then working out a technic suitable to one's own hands and fingers, the treatment of these patients will give much more satisfactory results than can be obtained in any other way. I have refused no case of this kind since Dr. Abbott showed me how to treat them, not because I felt that I could cure all, but because I found even the worst susceptible of some improvement. I treated over again six or eight patients in whom I had formerly failed to gain improvement by other methods. All these patients are loyal and enthusiastic about the Abbott method.

Dr. **Charles A. Parker**, Chicago: My experience is not so great as that of some others, yet I have handled quite a number of cases. One sees quite a number of them in Chicago. In the severe types of cases that one most wants to help I have seen improvement, but no cure. I do not want to say this to discourage; it is quite probable that Dr. Abbott has cured many of these patients, but the bad cases, in my experience, do not recover. There are several reasons for that I think. We have been showing the congenital deformities in scoliosis. Scoliosis high up in the neck takes in the upper dorsal region. The inherent conditions constitute another reason in the twisted vertebrae and transverse processes on the convex side. When lateral pressure is made on the ribs of the convex side with the leverage behind the center of the bodies, the tendency is to increase the rotation or flatten the angle of the ribs. The angle of the ribs has been increased in many cases, although the affected portion of the spine may be moved nearer the middle line.

Dr. **James K. Young**, Philadelphia: Dr. Abbott has a great advantage over other men practicing this branch of the profession because he can keep his patients in his hospital as long as he desires. So long a time is required for a cure that much difficulty is experienced in this respect. I have seen him treat patients in his own hospital and I have much confidence in his method. The mild functional forms of scoliosis do not require forcible correction, as they can be treated best by gymnastics and postural methods which I have been successfully using for over twenty years. I was glad to hear Dr. Abbott say at the meeting of the American Orthopedic Association in Philadelphia, that he took more time to treat severe cases, as this coincides with my experience in using his method. Certain forms of scoliosis are not suitable for this form of treatment, as severe paralytic deformity, supernumerary bones, empyema, rickets and softening of the bones of unknown etiology. Severe cases must be treated by a forcible method and in selected cases there is none so good as that of Dr. Abbott.

THE THREE CARDINAL CLINICAL SIGNS OF FRACTURE INTO OR NEAR JOINTS *

WALTER G. STERN, M.D.
Orthopedic Surgeon to the East Side Free Dispensary and to the Mount Sinai Hospital
CLEVELAND

The vast majority of fractures seen by the orthopedic surgeon are fractures into or near a joint, and of these too large a proportion are overlooked by the surgeon or practitioner rendering aid and are diagnosed as "sprains" or contusions. Roentgenologists affirm that at least 90 per cent. of all sprains coming to them for roentgenoscopy are really fractures of some sort and not sprains.

Be this as it may, few fractures about joints present all the usual classical symptoms of fracture, namely, crepitus, preternatural mobility or elasticity (Albert), deformity, angulation, shortening, loss of function, etc., either on account of an impaction of the fragments, incomplete fracturing or because one fragment may be too small and too firmly attached to the structures of the neighboring joint or the parts too tender to permit of the necessary motion between the fragments for the elicitation of the foregoing symptoms.

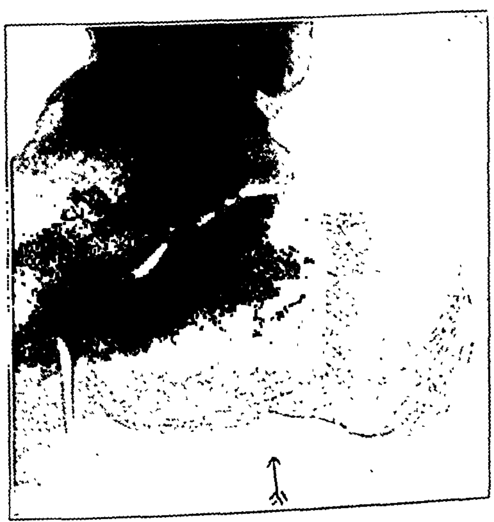


Fig. 1.—Avulsion fracture of os calcis (Case 1). Patient made a sudden jump to avoid being run over by an automobile. Diagnosed as "sprain" despite the pain, tenderness, swelling and ecchymosis which appeared a few hours after injury.

---

* Read before the Section on Orthopedic Surgery at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

While the general surgeons, through whose teaching the practitioners have learned to depend solely on the presence of crepitus, preternatural mobility and loss of function for their ability to make a diagnosis of fracture, are lamely offering such terms as "juxta-epiphyseal sprain" and "sprain-fracture" as stop-gap compromises; and while, for instance, Rose and Stewart state that "the ligament (at the lower end of the radius) is stronger than the bone and in the majority of cases on the cadaver pulls out the bone surface or causes by its stress a 'sprain-fracture' across the impact-receiving area," Helfreich, than whom no one has made better cadaver experiments on this subject, knows nothing of these hybrids and shows such cases to be incomplete, bending, arrachment, compression, fissure or torsion *fractures.*

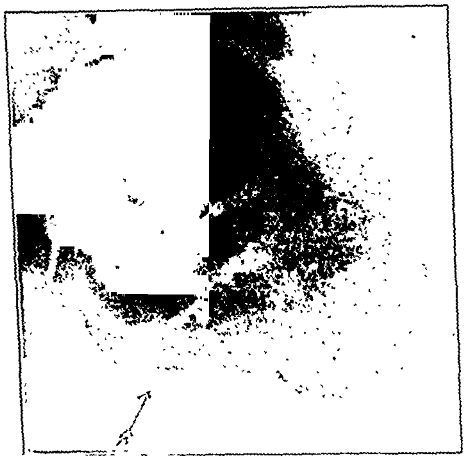


Fig. 2.—Fractures of os calcis (Case 2). Patient walked for two weeks; came to office unaided except by adhesive plaster strapping; foot much swollen and badly discolored when roentgenogram was taken. Pencil tenderness marked.

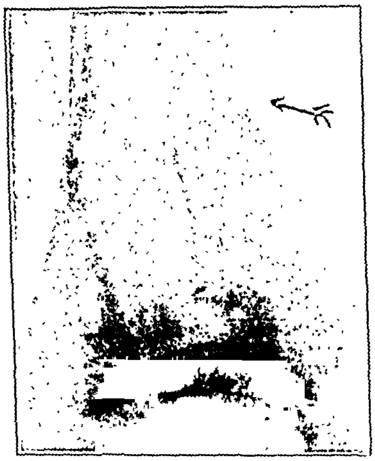


Fig. 3.—A "sprained" ankle now the basis of a malpractice suit (Case 3).

On the basis of a considerable experience with such atypical fractures, confirmed as such by the use of the Roentgen ray, I offer the following triad of symptoms, which I have always found present in the traumatic fractures of healthy bones as sufficient for a diagnosis, even when present alone, without any or all of the usual classical signs:

1. Localized bone tenderness over the fracture point or "pencil" tenderness.
2. Swelling, beginning at and spreading from seat of fracture.
3. Bloody discoloration or ecchymosis, spreading from this vicinity.

The fracturing of healthy bone gives rise to a greater or lesser degree of spontaneous pain, which, however, the fortitude of the patient may completely hide. While the entire member is usually sore to the touch, firm pressure about the seat of fracture will reveal a definite, constant point or line of great bone tenderness over the fracture. Often the tenderness is so exquisite that the patient can bear but the slightest touch to the fractured part of the bone, while pressure elsewhere is noticeably much less painful. It has not been unusual to find fractures so insensitive as to cause little loss of function, exhibiting the same marked bone tenderness. Palpation or pressure with the rubber tip of an ordinary lead-pencil so simplifies the mapping of this symptom that I have chosen the term "pencil tenderness" to describe it. This symptom persists for days and even weeks; in one case of undiagnosed and untreated fracture of the lower end of the radius, it was easily elicited as late as four weeks after the accident. While too much diagnostic importance should not be given to the presence of the bone tenderness alone, in the absence of signs of inflammation it is extremely suggestive of fracture and calls for the use of the Roentgen ray.

The characteristic swelling of fracture appears at once and is at first colorless. It arises and spreads from the injured area. It is doughy yet firm, hard but not inelastic, and is quite unlike the swelling of an inflammatory process.

The ecchymosis is dependent on bone hemorrhage for its production and does not make its appearance for at least twenty-four hours after the injury, in contradistinction to the discoloration caused by the bruising of the skin and soft parts, from trauma. The other structures in the neighborhood of a joint, namely, ligaments, capsule, tendons, bursae, etc., do not possess such a free blood-supply that their injury or rupture should cause this characteristic extravasation of blood. Ecchymosis is said never to occur in the fracture of the bones of the finger. I am positive that I have seen it in the few early cases coming under my observation. The diagnosis of finger fractures, however, should give little or no trouble.

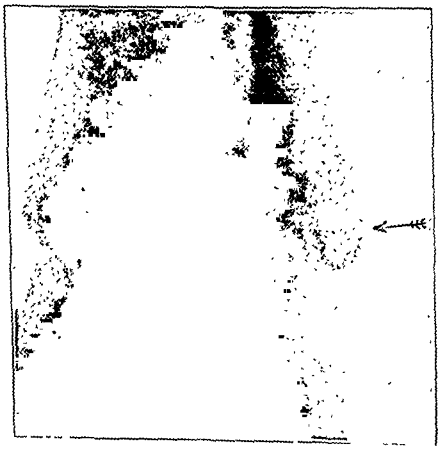


Fig. 4.—Type of injury often diagnosed as sprained ankle (Case 4). Patient twisted ankle getting off of car. No crepitus, etc.

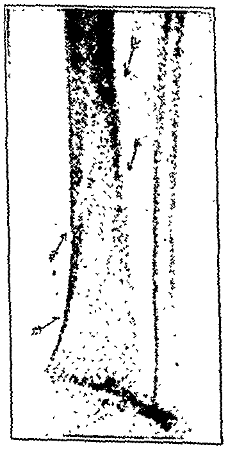


Fig. 5.—Spiral fractures of tibia (Case 5); no crepitus, deformity, etc.; the only symptoms were pain, "pencil tenderness," swelling and discoloration.

Roentgenograms, taken stereoscopically or at right angles to each other, should always be made to confirm this symptom complex. Even if the plates are good ones, negative roentgenographic findings should not be held to be final *if the clinical symptoms persist,* but another series of plates should be taken from ten to fourteen days later.[1] In preferring to trust the persistence of this symptom complex rather than the roentgenographic plates as ordinarily taken, I have in several cases been able to make the correct diagnosis of fracture and have it confirmed later on by other roentgenographic findings. The aspiration of the joint fluid has at times changed the roentgenographic verdict from negative or doubtful to positive.

---

[1] Compare An Interesting Decision of a Law-Court on a Wrong Diagnosis, Vienna Letter, The Journal A. M. A., May 2, 1914, p. 1416. In this case the early roentgenograms showed no fracture; the patient, however, evidently presented the symptom complex herein described, yet he soon walked on his injured foot. Roentgenograms taken some time later clearly showed a fracture of both the tibia and fibula.

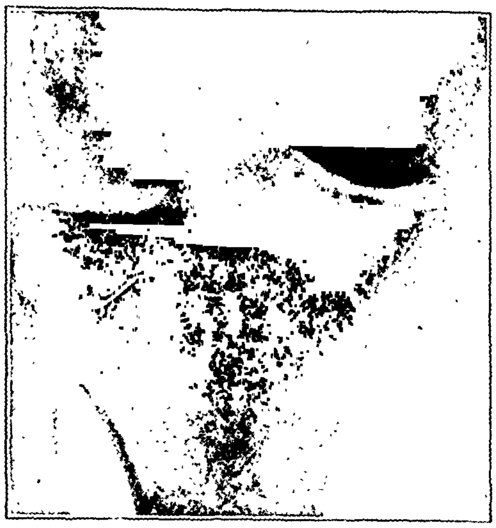


Fig. 6.—Undiagnosed fracture of head of tibia (Case 7).

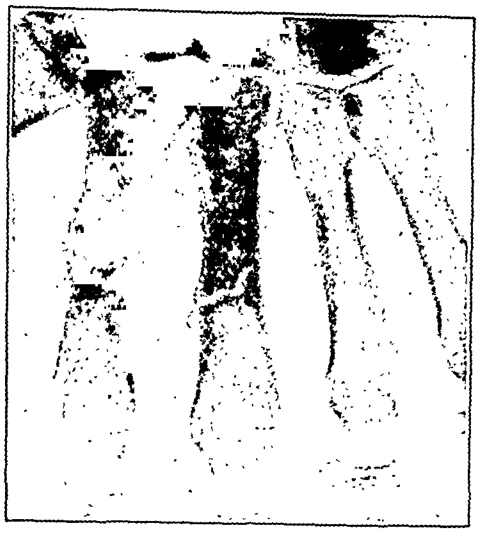


Fig. 7.—Undiagnosed and untreated fracture in hand (Case 9) from baseball.

I have seen fractures of every joint of the body, excepting the vertebral column, in which all the usual classical signs have been absent, which have been correctly diagnosed on the strength of this clinical triad. The following examples will suffice:

Case 1 (Fig. 1).—While jumping out of the way of an automobile the patient felt something give way in the heel. Has some pain, but can walk with a limp: diagnosed as sprained ankle. No crepitus, preternatural mobility, etc. Pencil tenderness, swelling and ecchymosis present six days after injury.

Case 2 (Fig. 2).—Patient had foot caught in an elevator; taken home in buggy; limped from buggy to house; seen soon afterward by a physician. Line of bruise was present in skin; pain and swelling present, but there was no crepitus or preternatural mobility. The following day he walked, with the aid of a cane, one-half mile to the street-car, then one-fourth mile to the company surgeon's office, where he had ankle strapped under diagnosis of contusion and returned the same way he came. Roentgenogram is said to have been doubtful. Clinical triad present at end of second week.

Case 3 (Fig. 3).—Patient fell from scaffold and was taken to hospital. No crepitus or other common signs of fracture. Diagnosed and treated for sprain. Presents pencil tenderness, swelling and ecchymosis.

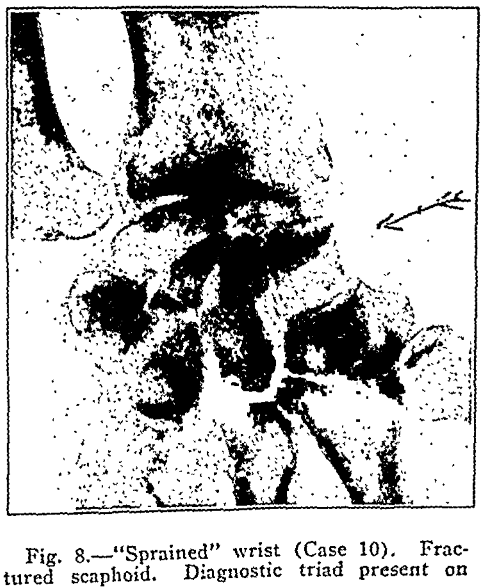


Fig. 8.—"Sprained" wrist (Case 10). Fractured scaphoid. Diagnostic triad present on fourth day.

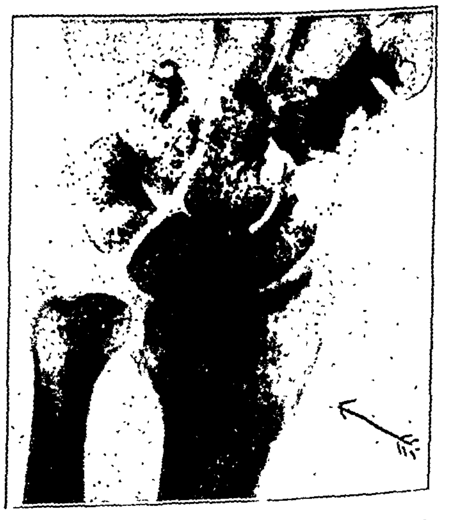


Fig. 9.—"Sprained" wrist from backfire of engine (Case 11). Patient steered large automobile many miles after injury occurred.

Case 4 (Fig. 4).—Patient fell from street-car and twisted ankle; can walk with a limp and works daily as a seamstress. There is much swelling, extreme bone tenderness and some discoloration. Case diagnosed by attending physician as a sprain.

Case 5 (Fig. 5).—Spiral fracture of tibia, all classical signs of fracture absent. Exquisite pencil tenderness, marked swelling, slight ecchymosis present.

Case 6.—Patient kicked by a horse. No crepitus, shortening, loss of function, etc. Patient can limp on this leg. Marked pencil tenderness two weeks after injury. Attending physician could not elicit crepitus immediately after injury, and on account of swelling diagnosed periostitis.

Case 7 (Fig. 6).—"Barked shin" in fall from a low buggy. Patient walks with aid of single crutch. No crepitus, preternatural mobility, shortening, etc. There is a tense tumor above and to inside of patella. Motion of knee-joint almost free. Line of tenderness over head of tibia, with swelling and discoloration. Puncture of knee-joint evacuated bloody fluid containing fat globules. Roentgenogram after puncture clearly positive of fracture.

Case 8.—Fracture at surgical neck of humerus; both attending physician and insurance examiner hold case to be rupture of the biceps tendon on account of the absence of all classical signs of fracture.

Case 9 (Fig. 7).—Patient hit by pitched ball; has been able to use hand freely but with some pain; fracture was never suspected. After two weeks clinical triad presented the only symptoms of fracture readily demonstrable.

Case 10 (Fig. 8).—Fractured scaphoid of wrist. Point tenderness, swelling, ecchymosis and immobility of joint are the only symptoms of fracture present.

Case 11 (Fig. 9).—Automobile fracture from backfire. Patient drove automobile several miles to see surgeon, who found none of the ordinary symptoms of fracture present and called condition a "sprained" wrist. Clinical triad present on the third day.

Case 12 (Fig. 10).—Fracture of lower end of humerus, diagnosed as sprain. Patient has limited motion in elbow-joint together with clinical triad. Ordinary attempts to elicit crepitus and preternatural motion unsuccessful.

Case 13 (Fig. 11).—Impacted fracture of humerus diagnosed as "torn ligaments." Shoulder motion quite free. Arm very painful; no shortening, deformity or crepitus. Swelling and bloody discoloration marked to the elbow-joint, which is held very stiff.

Case 14.—Patient was thrown from a swiftly moving car, striking pile of stone with hip. Fluoroscopic examination at a hospital is said to have shown a fracture of the femur just above knee. Patient asserts that knee was less painful than hip "bruise." Had no bloody discoloration about knee, but thigh was discolored and tender for many weeks. Discharged from hospital with plaster cast to knee. Has complained of soreness in the hip for the past two years. Careful roentgenographic examination now shows that there never had been a fracture in the neighborhood of the knee, but there existed an easily diagnosed thickening and fracture of the greater trochanter.

COMMENT

Granted that crepitus is not essential in making the diagnosis of fracture, violent attempts to elicit same are unjustifiable as well as brutal.

An anesthetic is as unnecessary in making the diagnosis of fracture as it is in arriving at a diagnosis in hip disease.

Every suspected fracture should be roentgenographed.

Cases which will show crepitus and preternatural mobility under an anesthetic will show preternatural elasticity without one (Albert).

Ninety per cent. of all sprains coming for roentgenography or consultation are fractures.

When all the usual classical signs of fracture are lacking, the presence of localized bone tenderness, swelling and bloody discoloration alone is diagnostic of fracture.

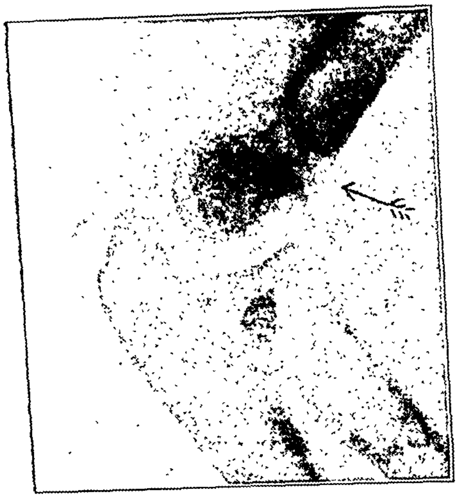


Fig. 10.—"Strained" elbow (Case 12).

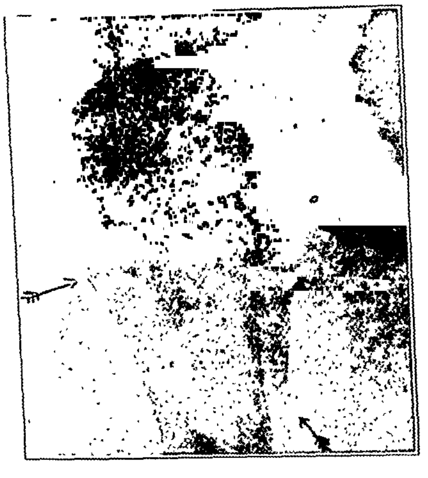


Fig. 11.—Fractured humerus diagnosed as torn ligaments and "sprain" (Case 13). Diagnostic clinical triad marked.

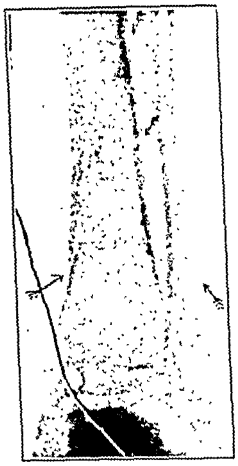


Fig. 12. — Undiagnosed spiral fractures of tibia and fibula. Patient walked into East Side Free Dispensary unaided, two days after injury.

The old adage "a sprain is worse than a break" is based on faulty diagnosis and subsequent lack of proper treatment.

821 Schofield Building.

ABSTRACT OF DISCUSSION

Dr. F. J. Cotton, Boston: This paper brings out an interesting point relative to the diagnosis in these old cases. A great many cases are overlooked, because we have subconsciously expected to find the ordinary classical signs of fracture. I am going to suggest another phrasing and that is: If there are local signs of injury where there is no reason to think the force of impact took place, it means fracture. This is phrasing backward what Dr. Stern said about the local signs.

If a man falls in a sitting position, and subsequently develops tenderness in the back, it is probable that that man has a broken back. He did not hit his back when he fell, but something in his back gave way. I think that these cases may be more safely tested by that rule than by any other if it is added that it is particularly true in cases in which there are no signs of local impact. One can get the localized tenderness and ecchymosis over the bone, if a patient gets a blow, and can confirm the diagnosis by means of the Roentgen ray. Dr. Stern's paper calls attention to the fact that we are not dealing with sprains but with real fractures. We should have proper terminology for these obscure injuries around the joints.

Dr. Frank E. Peckham, Providence, R. I.: Dr. Stern said that the roentgenologists claim that of the cases presenting themselves for their observation as sprains, 90 per cent. were true fractures. You should not reason from that, however, that 90 per cent. of all sprains were fractures; because the patients presenting themselves to the roentgenologists have already had treatment and the condition has not been recognized. I should not think that 90 per cent. of all sprains—or rather, cases thought to be sprains—were fractures.

Dr. G. W. Stern, Cleveland: I do not think Dr. Cotton has quite made the distinction that I wish to convey between the immediate discoloration of the parts from the bruising of the skin in the cases of fracture from direct violence, and the ecchymosis due to bone hemorrhage which makes its appearance about twenty-four hours after the injury. It is this latter type of bloody discoloration which, with localized bone tenderness and swelling, make up my diagnostic triad. In cases due to indirect violence I believe Dr. Cotton's trite aphorism expresses my thought quite happily. There are certainly such injuries to the ligaments and other soft structures of a joint as are known as "sprains" or "strains;" but the laity and, indeed, most physicians are wont to call any painful injury in the neighborhood of a joint, outside of a most outspoken fracture, a sprain. With such cases my deductions—of 90 per cent. being fractures—do not deal. On the other hand, it is equally true that almost all of the cases that are seen by the roentgenographer or consulting surgeon in which the symptoms of "sprain" have persisted or are severe, are true fractures. This is not only my own observation but also that of the present president of the American Roentgen-Ray Society.

The Need of General Culture as a Condition of Progress. —In the realm of ideas there is no such thing as spontaneous generation. Those who seem the originators of great movements are those who have been brought under great influences. Apparent exceptions to this rule, like Shakespeare or Darwin or Lincoln, prove, on examination, excellent examples. There is little difficulty in tracing historically the continuity of human thought. It follows that we cannot hope for a generation of original thinkers unless we immerse our students in the stream of the world's thought. The most inventive mind must have material on which to react, and cannot strike out in a vacuum.—Walter Libby, *Science.*

PROPHYLACTIC VACCINATION AGAINST EPIDEMIC MENINGITIS

A SUPPLEMENTARY NOTE

J. H. BLACK, M.D.
DALLAS, TEXAS

In April, 1912, Dr. Abraham Sophian, then of the Research Laboratory of the New York Board of Health, and I conducted a series of experiments to determine, as well as laboratory methods will permit, the value of prophylactic vaccination against epidemic meningitis. Injections of meningococcic vaccine were made on ten medical students who volunteered for the work. The details of this work with the results obtained were reported in The Journal.[1]

Eleven months later I repeated these experiments to determine what, if any, immunity could be demonstrated after the lapse of this time. Eight of the original ten vaccinated students were accessible. The technic used in the complement-fixation studies was identical with that formerly reported. The results of this study were reported in The Journal.[2]

With the effort to make this work as nearly complete as possible, I undertook in May, 1914, twelve and twenty-four months from the second and first examinations, respectively, a repetition of the complement-fixation studies. Table 1 shows the results obtained. It will be seen that all but one of the seven students at hand gave decided fixation in a dilution of 1:20, this, two years after the date of vaccination.

TABLE 1.—COMPLEMENT-FIXATION

Case No.	Dilutions				Control
	10	20	30	50	
1	++	++	—	—	—
2	+++	++	—	—	—
3	++	++	—	—	—
4	++	+	—	—	—
8	+++	++	—	—	—
9	+	—	—	—	—
10	++	++	—	—	—
Pos. con.	+++	+++	+++	++	—
Neg. con.	—	—	—	—	—

TABLE 2.—COMPLEMENT-FIXATION

Case No.	1 Month	1 Year	2 Years
1	200	150	20
2	200	150	20
3	100	150	20
4	100	100	20
5	30	*	*
6	*	*	*
7	200	150	*
8	250	100	20
9	100	250	10
10	200	250	20

* Student not accessible.

Table 2 is a comparison of the fixation of each student at one month, one year, and two years, respectively, after vaccination. The figures in each column refer to the highest dilution at which fixation was obtained.

While it is recognized that experimental vaccination of healthy individuals in the absence of an epidemic and the detection of immune bodies in their blood is an indirect way of proving its efficacy, and that the method must finally be judged by its clinical application, we feel that we are justified in drawing the following conclusions from these studies:

1. Prophylactic vaccination produces a high degree of immunity in most cases, this immunity being demonstrable at the end of two years. It seems a justifiable conclusion that most persons prophylactically vaccinated may safely consider themselves immune for at least two years. Exceptions to this will, of course, be found.
2. Some individuals may show an actual increase in immune bodies at the end of one year over those demonstrable soon after vaccination.
3. Fixation occurred with the serum of the positive control who has recovered from meningitis, but this fixation did not reach as high dilutions as did that of some of those vaccinated.[2] This has previously been found also in some others recovered from the disease.
4. Experimental evidence warrants us in concluding that prophylactic vaccination is a measure of the greatest value in the control of epidemic meningitis.

---

[1] Sophian, Abraham, and Black, J. H.: Prophylactic Vaccination Against Epidemic Meningitis, The Journal A. M. A., Aug. 17, 1912, p. 527.

[2] Black, J. H.: Prophylactic, The Journal A. M. A., April 26, 1913, p. 1289.

TRICHOTILLOMANIA

Richard L. Sutton, M.D., Kansas City, Mo.

We are indebted to the French school of dermatology, and particularly to Besnier,[1] Hallopeau,[2] Henri Fournier[3] and Brocq,[4] for the recognition and classification of the peculiar family of neurodermatoses which is represented by trichotillomania and dermatothlasia.

Trichotillomania, the *"trichomanie"* of Besnier, is an affection which is characterized by an abnormal desire on the part of an otherwise apparently sane individual to extract forcibly one or more of his own hairs.[5] The impulse is seldom cyclic, but is as sudden as it is uncontrollable, and Raymond's designation of *"tic de l'epilation"* is not an inappropriate one. The scalp, the eye-brows and lashes, and the beard are the parts most frequently attacked.

Dermotothlasia is a somewhat similar morbid state in which the affected individual possesses an ungovernable desire to rub, scratch or irritate the skin on one or several parts of the body.

TRICHOTILLOMANIA

Recently I had an opportunity to study two typical examples of trichotillomania.

Case 1.—The first case occurred in a married woman of 27, an American by birth and a housekeeper by occupation, referred to me by Dr. Charles W. Gosney of Kansas City. The patient had always been of a nervous temperament, but her family history was negative insofar as nervous or cutaneous ailments were concerned. Two years prior to the time of consultation she first became aware of the fact that she had acquired the habit of frequently jerking hairs out of her eyebrows whenever she was worried or subjected to prolonged periods of excitement. Despite her efforts to combat the practice, the habit grew stronger instead of weaker. She had never suffered from pruritus or other irritation of the supraorbital regions, and could not account for the propensity to remove the hair from these particular localities. The attacks were confined principally to the inner extremities of the brows, where the hairs protruded forward and were easy to grasp. It did not appear to matter which hand was used in the process of extraction. As the patient described it, she would have a sudden, intense desire to pull out one of the hairs (normal individuals probably experience a somewhat analogous sensation at times regarding one of the stiff vibrissae of the nose), and a second later she would be gazing at the freshly extracted appendage with its partially adherent root sheath.

---

[1] Besnier, E.: Monatsh. f. prakt. Dermat., 1889, ix, 572.

[2] Hallopeau: Ann. de dermat. et de syph., 1889, Series 2, x, 440; Bull. Soc. franc. de dermat. et de syph., 1891, ii, 157; Ann. de dermat. et de syph., 1894, Series 3, p. 541.

[3] Fournier, Henri: Jour. malad. cutan. et syph., April, 1898.

[4] Brocq: Traite Elementaire de Dermatologie Pratique, Paris, 1907, ii, 398; Jour. des pract., March 26, 1898.

[5] "La trichotillomanie consiste essentielment en une impulsion qui pousse les subjects a arracher des poils; ce besoin de pratiquer l'avulsion constitute une veritable manie, et nous l'avons observee sans qu'il y ait de prurit notable" (Brocq).

The patient was a muscular young woman, with brown hair and eyes. Her chin was firm and well set, and in her general appearance there was nothing suggestive of hysteria or other mental ill-balance. The skin of the face was smooth and unmarked, with but a slight trace of seborrhea. The lower lashes were normal, but the upper were sparse and straggling, and it is exceedingly probable that the patient had removed many of these also. The eye-brows were apparently much abbreviated, and set wide apart, a space of more than 11 cm. separating the inner extremities. At a few meters' distance the impression given an experienced observer was that of a bilateral alopecia areata of remarkable symmetry. On closer scrutiny, however, it was found that a broad, indistinct, bluish band projected inward for a considerable distance from the terminus of each brow. When these areas were examined with a magnifying glass they were found to be thickly studded with new hairs, many of which were just reaching the surface. The patient stated that as soon as a fresh shaft was of sufficient length to be grasped it was promptly extracted. The hairs in the outer portions of the brows were undisturbed, and the smooth, regular manner in which they were arranged, together with the apparently normal condition of the underlying skin, indicated that the patient's statement regarding the absence of pruritus was correct.

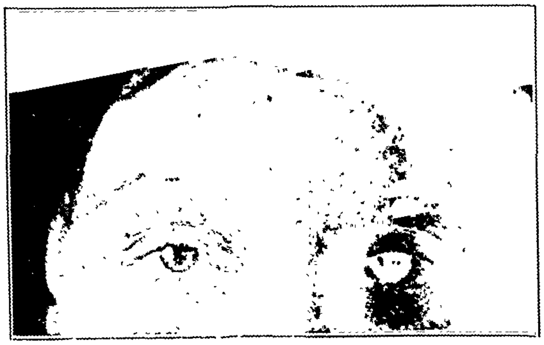


Fig. 1.—Trichotillomania, Case 1, showing absence of upper lashes and inner extremities of eyebrows.

Case 2.—The second patient was a schoolboy, aged 14, a native and resident of Kansas, who was referred to me by Dr. H. P. Ball of Kansas City. This patient has been under the care of Dr. B. M. Barnett of Rosedale, Kansas, for some time, and I am indebted to Dr. Barnett for the privilege of reporting it here. The neurologic history of the family is negative. There is one other child, a boy of 9. He is mentally and physically normal. The patient has always been of a high strung, nervous temperament. When a baby he sucked his fingers incessantly. Later, he chewed his nails. He has been a "mouth breather" nearly all his life. Although not very robust, he escaped the more serious of the diseases of childhood, and has never had a more serious disorder of the nervous system than the "habits" above mentioned. He has never suffered from headaches or eye strain, and there is no history of eczema or pruritus of the scalp.

On examination the patient was found to be a slender, fragile boy, with a shrunken chest and a retreating chin. The palate was arched and misshapen, and the teeth poorly aligned. The eye-brows and lashes were unaffected. The hair on the top and right side of the head was normal, but on the left side practically all of the stiff shafts were gone, and only the soft, fuzzy tips of the downy new growth were to be seen. The denuded skin was soft, smooth and pliable, with no trace of scratch marks.

The little patient stated that it was impossible for him to resist the impulse which occasionally prompted him to jerk out the stiffer hairs. The tendency was greatest whenever he became worried or excited.

TREATMENT

In the first case, rest and freedom from worry, with liquor potassii arsenitis in gradually increased doses, internally, appeared to benefit the patient's condition. The application of various anti-pruritics, such as phenol, menthol, camphor and tar, apparently had no effect whatever. Hallopeau has suggested the use of gutta percha and similar dressings of an impervious character in these cases. Probably a better plan would be to ameliorate the habit by keeping the hair shaved off for a period of several months. This patient absolutely refused to allow the adoption of this measure, but I hope to give it a trial later on. Dr. Barnett reports that the second patient has been considerably benefited by the use of tonics, principally arsenic.

If one excludes Brocq's *"acne excoriee des jeunes filles,"* as I think we should, true examples of dermatothlasia are exceedingly rare. Occasionally, however, one encounters a case of acaraphobia closely bordering on dermatothlasia. The following is an example:

DERMATOTHLASIA

Case 3.—M. P., female, spinster, physician, aged 52. This patient first consulted me in October, 1909, regarding a disorder which at first glance appeared to be a generalized pruritus. The disease had begun, three years before, with a slight itching of the skin on various parts of the body, and had continued at irregular intervals ever since. The integument was soft, moist and apparently normal, and there were no signs of senile atrophy. The urine contained considerable quantities of indican, but no albumin or sugar. The blood-pressure was not excessive. The hemoglobin was usually below 70 per cent. The cranial hair was short, dry and matted, and the scalp rough and scaly, probably a result of frequent and violent manipulation with the patient's nails. There were no signs of seborrhea or seborrheic dermatitis on the face or over the sternum. There was no hepatic tenderness, and the patient was not jaundiced. The woman's principal complaint was that she had "bugs" in her skin. She would suddenly pounce on some small area, most often located on the scalp or limbs, rub vigorously for a few moments, and then triumphantly announce that she had captured one or more insects, and that they were contained in the minute, tightly rolled, oat-grain-like mass of epithelial debris that she had detached. Innumerable negative examinations of the material made no impression whatever on her, but left her as firmly convinced as ever that her integument was inhabited by a new species of small but exceedingly industrious insect that would eventually prove her undoing. On subjects other than this ailment the patient's mind was unaffected. She suffered but little from pruritus, but explained that the sudden development of a slight sensation

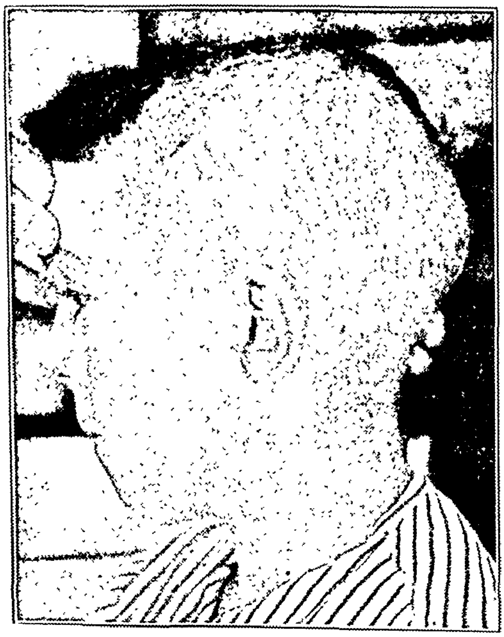


Fig. 2.—Trichotillomania, Case 2, showing extent of hair loss on left side of head.

of formication in the involved areas always precipitated the attack of rubbing. The forcible removal of a few of the outermost corneous layers invariably had a soothing effect on her mind, and after she had carefully burned the material and its supposedly dangerous contents, she was perfectly at ease, sometimes for hours. The patient was under observation for three years, and during that time almost every conceivable remedy was tried, always without relief. When last seen, the patient's condition was practically the same as at the time of the first consultation.

Lathrop Building.

DERMATOLYSIS

WITH REPORT OF TWO CASES

Wm. W. Cadbury, M.D., Canton, China

Recently I have come across two typical cases of the rare affection known as dermatolysis. The condition is defined in Stelwagon's Diseases of the Skin as a hypertrophy and looseness of the skin and subcutaneous connective tissue with a tendency to hang in folds, and has been spoken of as "loose skin," "cutis laxa," "cutis pendula" or "chalazodermia." It may be congenital or acquired. All parts of the skin share in the hypertrophy; it may be located in any part of the cutaneous surface of the body. There are no subjective symptoms and it is slowly progressive. The etiology is obscure though the disease sometimes begins at the site of an injury.

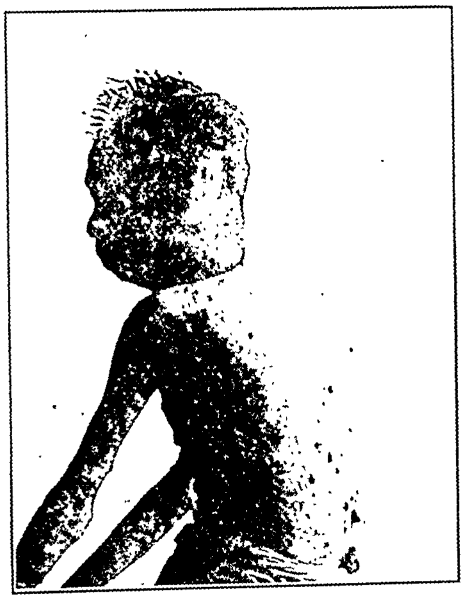


Fig. 1—Patient in Case 1. Note flap of skin and fibrous tumors on back.

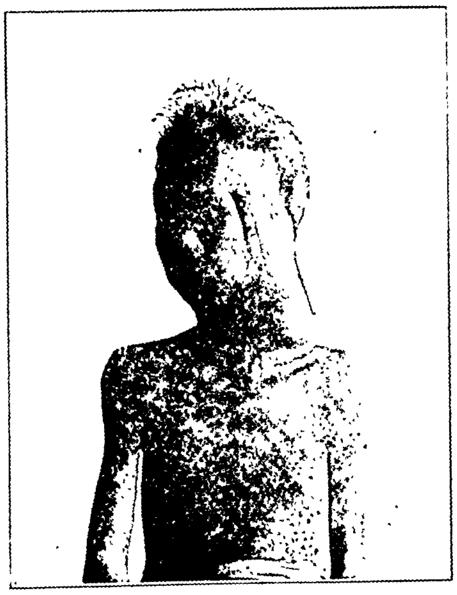


Fig. 2.—Front view of patient in Fig. 1.

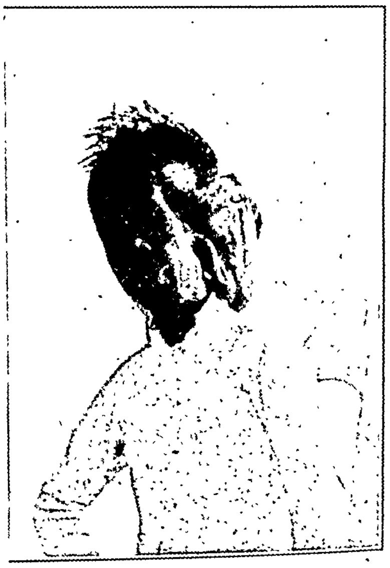


Fig. 3.—Flap of skin lifted to show ear.

The condition shows no tendency to decrease but rather to develop. Operative measures have been employed successfully when the hypertrophied flap of skin was troublesome.

It appears that fibromatosis is sometimes associated with dermatolysis, as in one of the cases cited below. In fact, the relationship of these two conditions seems to be not unusual.

Case 1.—P. S. O., a Chinese farmer, aged 33, was admitted to the hospital of the University Medical School, Canton, China, March 25, 1914, complaining of gastric distress, which was later diagnosed as gastric ulcer. Of rather slight build the patient presented a remarkable appearance on account of a large cutaneous flap hanging over the left side of his face. Over the back, chest and abdomen there were numerous fibrous tumors varying in size from that of a millet seed to a diameter of 1½ inches (Figs. 1, 2 and 3). The patient was below the average in intelligence and somewhat self-conscious of his peculiar appearance. He was discharged from the hospital April 7, in practically the same condition as on admittance.

Description of the cutaneous flap: This peculiar hypertrophic growth begins on the left side of the scalp at a point above the level of the eyebrows, falls down over the face entirely covering the left ear, which projects from the inner surface of the flap. It descends to the shoulder on which it rests. The flap measures 9 inches in length by 8 inches in width. The patient declares that at birth the flap was about 2 inches in length and has gradually been extending in size. In every way the skin resembles redundant scalp tissue. The external surface is studded with hair follicles from which recently clipped hairs project. The inner and external surfaces may be readily rubbed over each other. The color of the skin of the flap, like that of the rest of the body, is rather deeply pigmented. The loose skin may be readily raised up and the ear projecting from the inner surface disclosed (Fig. 3).

Case 2.—L. K., Chinese, aged 20, was admitted to the Canton Hospital in May, 1914, in order to care for a relative who was operated on for stone in the bladder. L. K. is not ill. When 5 years old he developed an abscess of the scalp behind and below the right ear and about 3 inches distant from it. The scar of this abscess is still visible. Ten years later he noted swelling of the scalp in this region. This has gradually increased so that at present the loose flap of skin extends 3 inches above the right ear, 2 inches below and is altogether 4 inches wide (Fig. 4). It is continuous with the tissues of the scalp, is slightly elastic and is not pendulous as in the former case. It is covered with hair. Patient feels no discomfort. The flap is said to be gradually increasing in size.

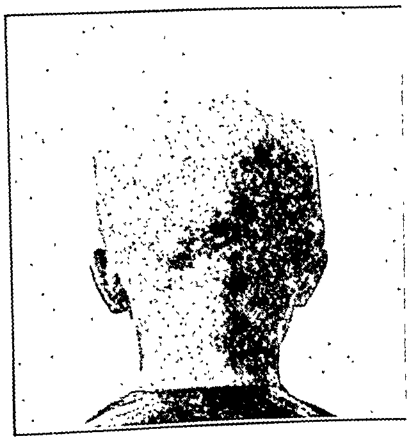


Fig. 4.—Patient in Case 2. Loose flap of skin behind right ear.

These two cases of dermatolysis, both of the scalp, represent the congenital and acquired form. In both cases the subject was below the average of intelligence. Neither was willing to have the redundant skin removed.

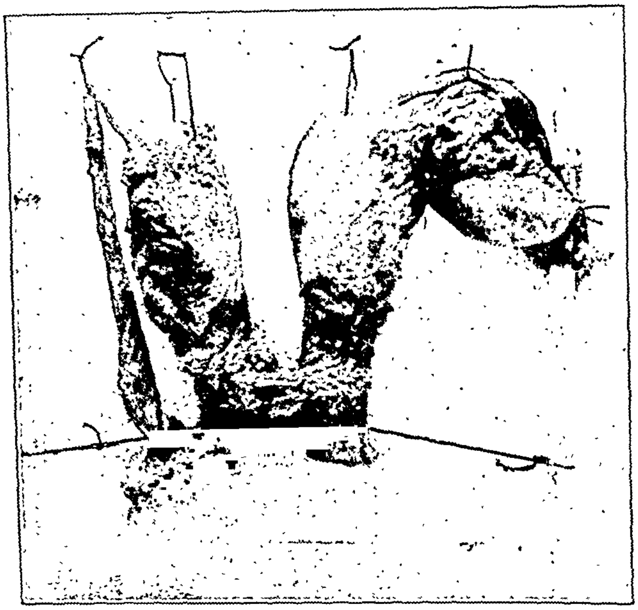
Canton Christian College.

Preventogram.—An hour's prevention may save a month of quarantine.—Pittsburgh *City's Health.*

A BICORNATE UTERUS WHICH CONTAINED THREE PREGNANCIES

Charles H. Parkes, M.D., Chicago

Mrs. H., aged 47, married twenty-five years; had three children and one miscarriage. At the first parturition forceps were used, and the perineum was extensively lacerated. Following the third childbirth prolapse of the uterus began, which increased slowly in degree, until, two years previous to operation, the cervix protruded from the vagina. On examination, a diagnosis of bicornate uterus was evident. The patient was a constant sufferer from the usual pains and from a profuse uterine discharge. Total hysterectomy was performed, followed by a complete recovery.



Bicornate uterus which contained three pregnancies.

25 East Washington Street.

THE THYROID GLAND IN PELLAGRA

Charles F. Beeson, M.D., Roswell, N. Mex.

Little attention has been given to the condition of the thyroid gland in pellagra. Some text-books do not mention it. According to Niles, in Lombardy, where there is much goiter and cretinism, physicians regard one disease as the cause of the other. He states that in the United States thyroid disease has not been noted in connection with pellagra to any extent. Out of 316 cases of pellagra investigated by a commission appointed by the Tennessee State Board of Health, this commission incidentally gave thyroid diseases as complicating in twenty-five instances, which was more than twice as many as any other complicating condition. The following case raises the question as to an etiologic relation between these two conditions:

The patient, a married woman of 45, presented herself April 13, 1913, and stated that she had always been in robust health until about one year previously. At this time she began having diarrhea with frequent passages accompanied often with colicky pains. This diarrhea has continued with more or less severity up to the present time. About five months ago she noticed that the back of both hands became rough, red and scaly, which she attributed to sunburn. She began having spells of aching, lost weight and became very nervous. She complained of dizziness and at times would walk like a drunken man. She also complained of indigestion accompanied by a sore mouth. A lump came into her throat and she said her neck-band became too tight. She said that her menstrual periods had been very irregular for several months.

Examination showed that the eyes were not noticeably prominent and von Graefe's sign was negative. The tongue protruded in the middle line, and was red and grooved transversely on the dorsum. It showed a bright red line along the under borders and was denuded of epithelium in spots. The tongue showed no tremor, nor was there any tremor of the fingers when extended. The sublingual glands were enlarged, and the ducts of Wharton were red and swollen. The thyroid gland was decidedly enlarged symmetrically. The backs of both hands were rough, scaly and dirty looking, with some redness along the knuckles. This eruption was exactly alike on both hands. Examination of the chest gave negative results. The abdomen was also negative except for some slight tenderness. Temperature, 98; pulse, 95; systolic blood-pressure, 120; hemoglobin, 90 per cent. The patellar reflexes were greatly exaggerated and there was slightly marked ataxia.

Patient was put to bed and fed liberally for about a month and was given iodin and arsenic. Her pulse dropped to normal in a few days and her nervousness gradually subsided. The eruption on her hands cleared up in about two weeks, only to flare up again in a few days, passing through a cycle of redness, roughness and desquamation lasting about three weeks. This eruption did not appear again. During this time the thyroid gland would apparently enlarge and recede. Her attacks of diarrhea gradually ceased and by fall all symptoms except some nervous exhaustion had disappeared. At the present time, Oct. 1, 1914, she is in good health and her thyroid is not noticeably enlarged.

What part did the thyroid play in this case? Was it a mild case of pellagra, simply complicated by an enlarged thyroid, or was the perverted action of the thyroid the cause of the pellagrous symptoms?

A TACK IN THE EPARTERIAL BRANCH OF THE RIGHT MAIN BRONCHUS

Wilhelm Lerche, M.D., St. Paul

A girl, aged 6 years, six days previous to consultation held an upholstering tack in her mouth, which accidentally found its way into the lung. She choked and coughed up some blood, which was followed by a somewhat persistent cough with expectoration.

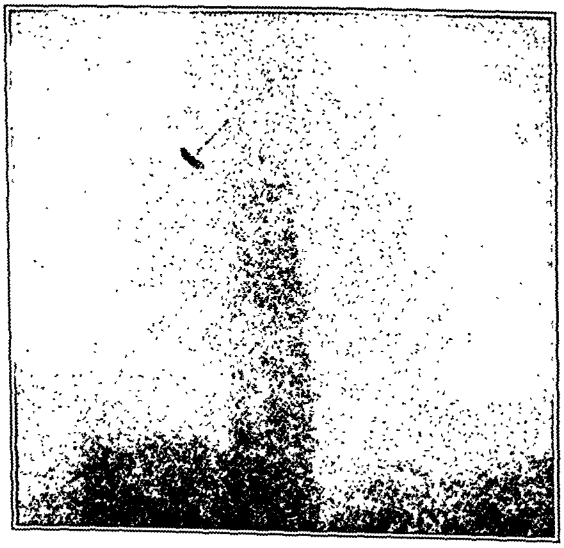


Fig. 1.—Tack in right main bronchus, three days after accident.

A roentgenogram (Fig. 1) had been taken three days after the accident, indicating the presence of the tack in the right main bronchus with the head downward.

There was absence of breath sounds in the upper part of the lung and râles below.

I expected to find the tack in the same position as seen in Figure 1, and did not have another roentgenogram taken, but immediately made a bronchoscopic examination, which revealed the following: About 5 mm. of the sharp end of the tack was seen in the right main bronchus, somewhat posteriorly to the right with the point downward and toward the midline, closely hugging the wall. It appeared as if it had been stuck through the wall from the outside, as there was no trace of the opening to the eparterial bronchus. The forceps was applied and many attempts were made to extract the tack, but the lower part of the lung was simply pulled up with it for a considerable distance before the forceps slipped off. Attempts were made to pull the tack downward but without success. The point could be brought up in the bronchoscopic tube but it required considerable force.

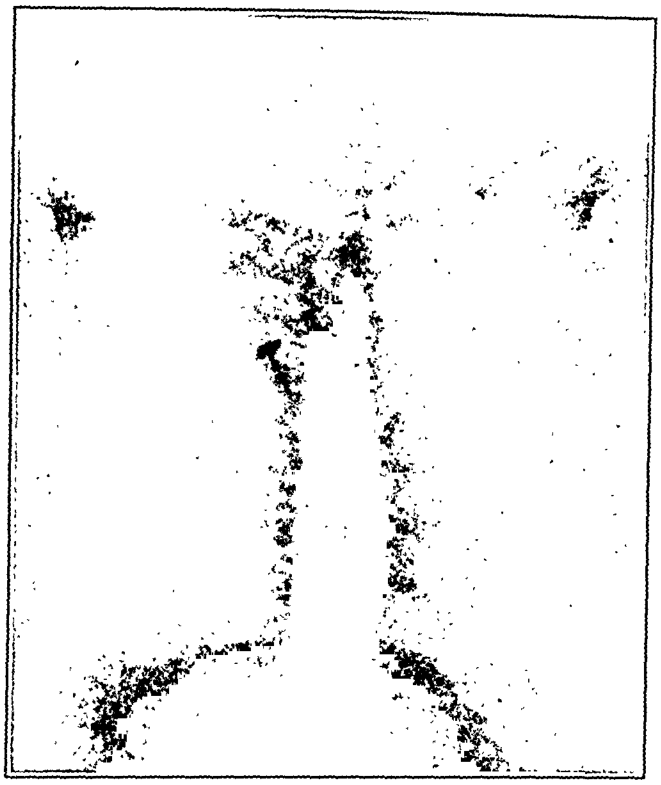


Fig. 2.—Tack in right eparterial bronchus, eight days after accident.

It was evident that the head was up in the side bronchus and that the swelling had completely occluded the lumen of the bronchus around the tack, on which epinephrin had no effect, so that forcible extraction could not be carried out without much destruction. After this attempt there was increase in the cough, pronounced hoarseness, and a temperature varying between 100 and 103.8.

Roentgenoscopy now showed the tack with the head up (Fig. 2), as seen through the bronchoscope.

I decided to incise the neck of the eparterial bronchus to liberate the tack, and to this end had the curved blade (A *b*, Fig. 3) made, which is worked by a lever (A *c*, Fig. 3).

Three days after the first attempt the incision into the neck of the bronchus was made through a 5-mm. bronchoscope. A gush of dark blood poured out, but ceased as soon as the bronchoscope was withdrawn.

The following day there was a marked change in the patient's condition. The temperature was normal, the hoarseness had disappeared, the cough had lessened and she felt very well although the tack was still in the bronchus.

As extraction of the tack was not attempted, and, I think, should not have been attempted in the same sitting, because it might have greatly increased the hemorrhage, I could not be positive that the incision had been sufficient. For the third sitting, therefore, two other methods of attack were prepared. Two long and very slender cannulas were made to fit on ordinary nasal snare handles. The right side of the distal end of one cannula was filed off slanting so that when the tack was snared it would be held as near parallel to the cannula as possible (B *a*, Fig. 3). With another snare one or more wires were to be slipped over the first one and on the tack (B *b-c*, Fig. 3). While one assistant would push downward the point of the tack securely held by the snare, another assistant should pull up on the loose wire, *b-c*. The head of the tack would thus be brought close to the bronchoscopic tube and as near the neck of the bronchus as possible, and with a short straight blade which was made for the purpose or with a cautery, the intervening part could be severed. This could also be done by using the wire as a saw or by threading it on the second snare and snaring it.

In Figure 3 C another method is shown in which by the aid of the snare, *b*, the point of the tack is pulled up into the bronchoscopic tube and with the cautery or knife the neck is to be incised.

Seven days after the incision was made a roentgenogram showed the tack in the same position as in Figure 2. Bronchoscopy likewise demonstrated the tack in the same place and the incision could be seen. When the forceps was applied, however, the tack was found to be entirely loose, and when it was lifted out it fell headforemost into the lower hyparterial bronchus, whence it was quickly picked up and removed.

The tack measured 18 mm. in length and the head 8 mm. in width (D, Fig. 3). The lung cleared rapidly and the patient left the hospital a few days later.

In the first roentgenogram (Fig. 1) the tack was apparently in the right main bronchus, point up, and with the head probably resting in the opening of the eparterial bronchus. By suction it had been advanced up into the latter (Fig. 2).

I have been unable to find any measurements of the eparterial bronchi in children, but according to Engel (*Arch. f. Kinderheilk.*, 1913, p. 60) the diameter of the right main bronchus in a child of 5 years is: sagittal 8.4 mm., frontal 6.9 mm.; in a child of 7 years is: sagittal 9 mm., frontal 9.3 mm.

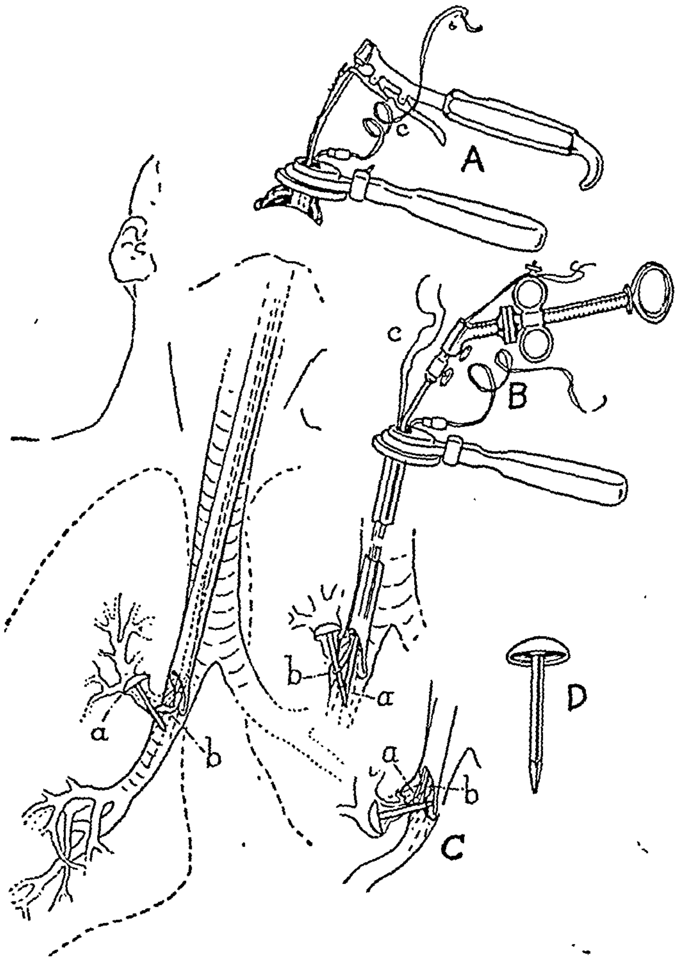


Fig. 3.—A: *a*, upholstering tack; *b*, curved blade; *c*, lever for working the blade. B: *a*, distal end of snare holding tack downward; *b*, *c*, wire for pulling head of tack upward. C: *a*, cautery; *b*, snare. D: Tack (actual size).

The length of the eparterial bronchus: at the age of 5 years 7 mm.; at the age of 7 years, 10 mm.

According to Abey, the diameter of the main right bronchus in men is: from 15 to 21 mm.; in women, from 13.5 to 16 mm. The diameter of the eparterial bronchus in men is from 7 to 10 mm.; in women, from 8.5 to 9 mm.

According to this, roughly estimated, the diameter of the eparterial bronchus would be about half of that of the main bronchus, and the eparterial bronchus in a child of 6 years would very likely be less than 5 mm. in diameter.

Allowing for the individual variation in size of the bronchi, it would seem almost incredible that so large a foreign body could work its way into a side bronchus of a child of that age, and it can readily be understood how firmly it was fixed in place.

Lowry Building.

A CASE OF CARDIOSPASM, WITH IMPROVEMENT IN METHOD OF DILATATION

T. Arthur Johnson, S.B., M.D., DeKalb, Ill.

History.—Dec. 12, 1912, an 18-year-old Finnish girl came to me complaining of being unable to keep anything in her stomach. The interpreter stated that she had not retained any liquid or solid food for over eight days. When she attempted to swallow anything it was immediately returned. This was accompanied by a burning sensation at the pit of the stomach, but the returned food did not taste sour. She felt hungry and dry, and had lost 10 pounds in weight. She had had similar, slight disturbances at intervals for about a year and at these times was relieved by drugs. The previous history is negative with the exceptions that she had an attack of acute articular rheumatism about a year before and she has always been "nervous."

Examination shows a fairly well-developed, neurotic appearing girl with very prominent eyes. The faucial and corneal reflexes are practically absent. The thyroid is slightly enlarged, but the pulse-rate is normal. The left border of cardiac dulness extends one finger's breadth to the left of the midclavicular line, the pulmonic second sound is accentuated and a loud systolic murmur is transmitted to the left axilla. There is slight tenderness on pressure over the epigastrium. The hemoglobin is 70 per cent., and the reds and whites are normal in number and type.

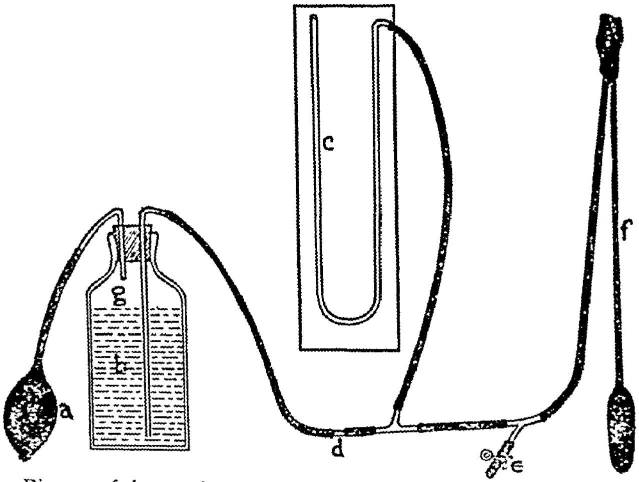


Diagram of the complete apparatus for dilating the cardia: *a,* hand-bulb of mercury manometer; *b,* water in pressure bottle; *c,* mercury manometer; *d,* glass capillary tube; *e,* emergency valve; *f,* Sippy cardiospasm dilator; *g,* compression chamber above water.

Treatment.—A stomach-tube reinforced with a piano wire was passed without resistance, and the patient was fed by gavage and placed on bromids and belladonna. In about one week she could swallow without any difficulty. Four weeks later she returned with the same symptoms. I passed a series of olive esophageal dilators into her stomach very easily, the largest one passing as easily as the smallest. At no time could I demonstrate but a small quantity of retained pabulum in the esophagus. At that time I did not have easy access to a Roentgen-ray apparatus.

Jan. 4, 1913, I dilated the cardiac sphincter with a Sippy rubber bag dilator up to 150 mm. of mercury. The patient was free from her trouble for two weeks. At the return of the cardiospasm I again dilated the sphincter to 300 mm. of mercury without causing any pain. Since then there has been no recurrence of her cardiospasm.

IMPROVEMENT IN METHOD OF DILATATION

In connection with the report of this case I wish to present a slight improvement in the method of forcible dilatation of the cardiac sphincter by means of the rubber balloon dilator. The apparatus used is a combination of the ideas of the pioneers in this work, with the innovation consisting in generating the dilating pressure by compressing the air-chamber of a tightly stoppered bottle—partly filled with water—by means of the hand bulb of a mercury manometer.

With the apparatus arranged as in the diagram, the rapidity of increase and the amount of pressure are at all times under complete control of the operator. The pressure generator can be easily constructed and is extremely portable. The small capillary tube *d* inserted into the lumen of the rubber tube is a further safeguard against too rapid dilatation, and the emergency valve *e* provides for instant release of the water pressure in case that becomes necessary. This provides a more simple, easy and safer method of obtaining the pressure than any that has come within my knowledge.

Therapeutics

PREVENTION IS GREATER THAN CURE

(*Continued from page 2043*)

XI

AIR CONTAMINATION

Normally the alveolar air of the lungs, that is, the air retained in the lungs for oxygen and carbon dioxid (CO_2) exchange, contains about 5 per cent. of the latter. If the amount of this gas in the retained air is diminished below 5 per cent., breathing is slowed until the carbon dioxid has accumulated and this percentage is again reached. If the percentage of the carbon dioxid is increased above 5 per cent. the respiration becomes more rapid, until the amount again becomes normal.

The arterial blood leaves the lungs with the same percentage of carbon dioxid in it as is in the alveolar air, and this carbon dioxid content of the blood stimulates or depresses the respiratory center, depending on the amount of the carbon dioxid in the blood. Therefore, this gas is a regulator of the respiration. Exercise increases the carbon dioxid, and hence the respiration is increased.

The alveolar air contains about 16 per cent. of oxygen, and the red blood-corpuscles in the blood of the left heart normally contain all they will absorb. Crowder[1] says that if the oxygen is diminished in the lungs to 12 per cent. or less the corpuscles will still take up their full quota. He also states that neither a surplus nor a deficiency of oxygen in the air supplied the lungs, unless the difference is extreme, will cause a change in the oxygen content of the red corpuscles. Actual need of oxygen will not increase respiration if at the same time the carbon dioxid in the alveolar air is reduced; that is, the carbon dioxid must equal 5 per cent. for normal respiration to occur. He emphasizes the fact that "with each breath we take back into the lungs the air contained in the nose and larger bronchi

---

[1] Crowder, T. R.: On the Reinspiration of Expired Air, Arch. Int. Med., October, 1913, p. 420.

—the 'dead-space' air. This 'dead-space' air constitutes about one-third of the whole volume of quiet inspiration and not less than one-tenth of deep breathing. To all intents and purposes it is expired air which is constantly reinspired."

Hence the degree of contamination of the air in a room with carbon dioxid does not affect the individual, but the amount of water vapor does. It is not rebreathing the same old air, either of our own breath or of others, that mainly affects us, but it is the water vapor which prevents the air exchange on the surface of our bodies, and especially stagnant, overmoist air, that depresses and debilitates us.

Crowder has fully shown that we rebreathe our own inspired air over and over again. Hence it is not pure air we breathe. This is true when at rest, true when in bed, especially true in some confined sleeping positions. It is true with open windows, and in most tents and on verandas, and even in actual open air, unless the wind blows freely across our faces. In the latter case the depth of the breathing is reduced, and we might reexchange the air of the upper air passages more or less all night even while sleeping with the face exposed to the wind.

None of this militates against the value of clean, fresh air as a stimulant to the metabolism, and therefore to health, but it does show that the chemical constituency of the air is not primarily important, while the temperature and moisture are. Dry, cool air is bracing; dry warm air, if in motion, may be comfortable and not depressing; but warm, moist stagnant air is very depressing to metabolism, and hence when such a condition occurs in houses, stores, factories or assemblage halls harm is done to the individual in amount depending on the hours he spends in such an atmosphere. Overheating of houses and schoolrooms is harmful; too great humidity is also bad, although a too dry atmosphere is not desirable.

DISSEMINATION OF CONTAGION

The wonderful progress in medicine is in no way shown more than by the knowledge acquired by the bacteriologists and by the wonderful experimental work of the laboratory workers. The various funds devoted to this work are paying large dividends in preventive medicine. Experimentation with the higher animals which more closely resemble human beings has disclosed many truths hitherto unknown regarding pathology, bacteriology and contagious diseases.

It was formerly believed that infectious material, which was not then known to consist of micro-organisms, was carried through the air for considerable distances. With small-pox it was believed that infection could travel several thousand feet. It has now been shown that this disease cannot pass through the air more than a few feet.[2]

Infectious material from patients suffering from disease of any kind may adhere to clothing, furniture, books and similar articles and may be carried from one person to another and be a means of infecting other individuals, but this method of transmission is at the present time believed to be uncommon. Ordinarily a contagious disease is acquired by direct contact and largely by the patient breathing in germs or particles of infected matter which have been expelled from the person affected with the disease by sneezing, coughing, or even loud talking.

A frequent means of transmitting disease from one person to another is by so-called "missed cases," that is, patients who have the disease in such a mild form that it is not recognized. This is especially likely to happen with diphtheria and scarlet fever. Another frequent source of acquiring disease is by means of so-called "carriers," that is, persons who have in their throats or other parts of the body the micro-organism of a disease, but who do not know they have the disease and are not made ill by the germs.

Some pathogenic bacteria die so quickly after leaving the body that infection from dust or air contaminated by them is practically impossible. Such are notably the germs of influenza, cerebrospinal fever and gonorrhea. In these diseases direct contact is the only probable method of transmission. This does not detract from the fact that not infrequently contagion is conveyed to well persons who come in contact with mucus or mucopus containing living germs.

Tubercle, diphtheria and typhoid bacilli, on the other hand, may survive drying and be wafted in the dust, but infection by means of such dust is probably very rare. Droplet contamination of air and of articles immediately about a person infected with pulmonary tuberculosis or diphtheria frequently occurs.

The air of sewers has been shown to contain few pathogenic organisms, except in very rare instances. A few colon bacilli have been found, but then in such small numbers that the danger of infection from inhaling such gas is practically nil.

Even if the dust of a room is shown to contain viable tubercle or typhoid bacilli, the number of such in the upper air of the room would ordinarily be so few that infection in this way is practically impossible. Young children playing about the floor of such a room, however, would be in danger of infection, and infection with tuberculosis in children is doubtless frequently thus acquired.

Investigation seems to show that the pathogenic bowel germs are rarely air-borne, and that the infection cannot be thus acquired. Such germs are those of typhoid fever, paratyphoid fever, dysentery, diarrhea and cholera. Typhus fever is not air-borne, but is due to the bites of the infected body- or head-louse. Bubonic plague is transmitted by the bite of an infected flea.

The rapidly spreading influenza (the grip) seemed surely to be disseminated by dust or to be air-borne, but it seems that, like tonsillitis, diphtheria and ordinary colds, it is contracted by contact either with the infected person or with contaminated substances, as clothing, handkerchiefs, furniture, eating and drinking utensils, etc. The same is true of eye inflammations and contagious skin diseases. This has long been known to be true of syphilis and gonorrhea.

Much more difficult for medical men, to say nothing of laymen, to believe is what must now be considered a fact, namely, that the scales of desquamating scarlet fever are not contagious and do not carry the contagium; scarlet fever is spread only by contact with the infected person or with articles infected by the patient having the disease.

Measles, apparently the most readily spread of any contagion, seems to be transferred only by contact. It was suspected that this disease was transmitted by the air because a child could disseminate it so many days before he was actually sick and confined to the house or bed. Whooping-cough, "German measles" and chicken-pox are all probably spread by contact and not by diffusion through the air. Small-pox, as stated above, is spread only by contact.

---

[2] Kiefer, G. L.: The Control of Contagious Diseases in a Municipality, The Journal A. M. A., Dec. 7, 1912, p. 2022.

It has been shown in hospitals that if the nurses are careful not to allow contact with other patients, small-pox, measles and scarlet fever, the most contagious of all diseases, may be cared for in adjacent wards, and even, in careful experiments, in adjacent beds, without infection of others. Of course, such close association of a contagious disease with those who have not the disease is absurd on account of the failure, in the routine work, of nurses and attendants to carry out strict measures to prevent contact or the transmission of contaminated articles from one to another. Therefore, there should be separate wards, if not separate buildings, for the different contagious diseases; but the experimentation mentioned above shows conclusively that these diseases are spread by contact only.

It is now recognized in hospital operating rooms that droplet infection is a danger, if all other sources of infecting the wound are excluded, and hence surgeons and their assistants wear mouth and nose covers lest they cough, sneeze or speak energetically, and thus spray the region of the wound.

It is hardly probable that pneumonia and acute rheumatism can be spread in any other way than by contact. It is possible that these more or less constantly present germs may require only a certain condition of the mouth, upper air passages and system to infect us. Cerebrospinal fever and infantile paralysis doubtless require contact, and are probably not air-borne. It should also ever be remembered, in considering the possibility of an air- or dust-borne infection, that it requires a large number of most germs to cause an infection; a few would ordinarily be killed off before infection could occur.

FLIES

The ubiquitous fly is a menace and a distinct and positive source of danger. He can disseminate typhoid, diarrhea and dysenteric germs, and probably also the germs of tuberculosis, diphtheria, scarlet fever, cerebrospinal meningitis, small-pox, carbuncle, tetanus, rabies, anterior poliomyelitis, and even germs from granular lids. Also these insects can harbor, for long periods, in their bodies the various pathogenic germs. Frozen flies from a hospital, after being externally cleansed and dried and then powdered and cultured, have been shown to harbor staphylococci, streptococci, colon bacilli and about fifty other kinds of bacteria. Experiments have shown that when a fly is fed on such bacteria as the typhoid bacillus and streptococci, and later cultures taken from its dead body, these cultures will show pure growths of the bacteria on which the fly was fed.[3] Consequently, not even a dead fly is a good one, and all dead flies should be cremated if not washed down the sewers.

House and stable flies are not supposed to stray ordinarily more than 500 yards from their breeding-places, but winds may carry them farther. It should be regarded as an axiom that all breeding-places (manure heaps and filth) should be abolished, or receive such treatment as to prevent the growth of the flies, and in this object there should be cooperation of families, tenement owners, towns and cities.[4]

Infected flies may be readily carried on horses or in vehicles of all kinds for long distances, and may be the source of infection of patients far removed from the contagion, and the transportation of germs by flies doubtless accounts for many new foci of disease.

MALARIAL FEVERS

Thousands of lives are lost in the United States from malarial fever, and many thousands of persons are incapacitated for days and weeks by such fevers.

Although the subject of mosquitoes has already been touched on, it may be again emphasized that the public should know, and children in schools should be taught, that the anopheles mosquito, which inhabits swampy places and does not ordinarily fly far, and only comes out of its lair and bites at night, is the only source, as far as we know, of what is termed malarial fever.

This mosquito is innocent of harm until it has sucked blood infected with malarial plasmodia, capable of development, from a human being. When these germs develop into spores and are excreted by the mosquito's salivary glands she is able to infect an innocent human being. The female mosquito will harbor these germs until she dies, unless she is subjected to a temperature below 60 F. Hence in regions where the temperature falls below this point for a shorter or longer period, these infected mosquitoes are no longer able to infect human beings. The source, therefore, of the next season's infection is in human "carriers" of malarial germs, in most parts of our continent, except where it is always warm.

The question, then, is, Can we eradicate malarial plasmodia from human beings? Probably yes is a correct answer if we follow what has been scientifically ascertained, namely, that quinin in proper dosage will stop acute malarial fever in two or three days. But as this quinin destroys only the asexual forms, that is, the form that causes paroxysms, while the sexual or reproductive forms may live and redevelop for infection of the mosquito, or to cause a reinfection and symptoms in the patient, the drug should be again given for two days of each week for a period of eight weeks to be sure of complete elimination of the germ; or it may be as well to give the patient a daily dose for eight weeks to eradicate the germs and their spores completely and to prevent the infection of future mosquitoes. If every physician carried out this plan, and every patient allowed it, malarial fever would become unusual.

It may again be mentioned that kerosene or crude petroleum sprayed on stagnant water or wet places will prevent the development of mosquitoes. One ounce of kerosene will cover 15 square feet of water surface: Stagnant water should not be allowed.

(To be continued)

Birth- and Death-Rates.—Records of the Department of Health show that for the past six years the birth-rate of New York City has been steadily decreasing, and that last year the lowest point for the six years was reached. The death-rate had likewise decreased steadily, so that to-day the births exceed the deaths by eleven per 1,000. This city has the second lowest mortality figures among the cities of the world which have a population of 2,000,000 or more. The birth-rate here is 25.15 per 1,000, while in London it is 24.93 and in Berlin 19.61. The death-rate exceeds only that of Berlin, which is 13.48 per 1,000. The deaths from pulmonary tuberculosis number 1.601 per 1,000, while in Paris they are 3.178. Paris has also the highest mortality from typhoid fever.

---

[3] Berezoff: Russk. Vrach, June 29, 1913.

[4] For methods of prevention of the growth of flies see Department of Agriculture Bulletin 118, issued July 14, 1914.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street . . . Chicago, Ill.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

Contributors, subscribers and readers will find important information on the second advertising page following the reading-matter

SATURDAY, DECEMBER 12, 1914

THE PROPER DOSAGE OF DIPHTHERIA ANTITOXIN

At the last session of the American Medical Association, Dr. W. H. Park[1] read a paper in which he reported his experience with Schick's[2] test. This reaction indicates whether or not persons who have been exposed to diphtheria are susceptible to the disease; that is, whether or not prophylactic injection of antitoxin is needed. In the discussion, it was urged that the matter be brought to the attention of physicians as soon as possible, in order to avoid the expense and inconvenience of unnecessary prophylactic inoculations.

Some later studies of Schick[3] which bear on the dosage of diphtheria antitoxin in the treatment of diphtheria patients have recently been reported from von Pirquet's clinic in Vienna. They seem to be of such practical importance for the every-day work of general practitioners as to make it desirable that every physician should become acquainted with them. While all special workers will want to read the full details of the experimental work which has led to Schick's conclusions, in general, it will be sufficient to know the results and that the methods by which they have been reached indicate that we have good reason to believe in their reliability. It is interesting to see how closely the results obtained by Schick correspond to those which followed the careful studies of Park on toxin and antitoxin titration in diphtheria.

Schick and his associates have made use of the now well-known fact that intracutaneous test injections of minimal amounts of diphtheria toxin will cause redness and swelling at the site of injection. In diphtheria patients, they made several such intracutaneous test injections at three-hour intervals for some little time preceding the moment of injecting the curative antitoxin. After injecting antitoxin, they subsequently made intracutaneous test injections of the same minimal amounts of diphtheria toxin at twenty-four hour intervals. The curative dose of antitoxin was given intramuscularly, and varied in size in different patients. The effect of the antitoxic serum is precisely recognizable by the decrease in the diameter of the reactions following the intracutaneous test injections of toxin.

Careful observation showed that the main effect of the antitoxin is one of immunization — that is, a suitable dose of antitoxin renders the individual immune to a dose of toxin administered later. On the other hand, even a large dose of antitoxin has but slight effect on the action of toxin injected previously. To be sure, there is some effect on toxin introduced from three to six hours before the injection of antitoxin, and in exceptional cases an enfeeblement of the effect of the toxin introduced nine hours before the antitoxin was given; in other words, the main effect of antitoxin injection is to protect against toxin arriving after the antitoxin has been introduced.

The experiments have shown that it is necessary to calculate the dose of antitoxin according to the body weight of the patient. When amounts of antitoxin corresponding to 50 units per kilogram[4] of body weight are given, the protective effect against toxin injected simultaneously, and on that injected twenty-four hours later, is demonstrable, but is not satisfactory. On increasing the dose of antitoxin to 100 units per kilogram, the immunizing effect is extraordinarily better, as, in the majority of cases, toxin injected twenty-four hours later produces no effect whatever. In addition, the effects on toxin injected simultaneously is much better than when only 50 units per kilogram are given. On increasing the dose of antitoxin to 250 or to 500 units per kilogram, the influence on simultaneously injected toxin is somewhat improved, but there is no increase whatever in the immunizing effect, for, as has been said, 100 units per kilogram exert a maximal effect on any toxin subsequently introduced.

Further observations showed that a maximal antitoxin effect is obtained with a dosage of 500 units per kilogram; larger doses have no greater influence, either on simultaneously injected toxin or on toxin injected twenty-four hours afterward. The retroactive effect on toxin injected three hours earlier is very slight even when 500 units per kilogram are given, and such large doses have only a slightly better effect than doses of 100 units per kilogram.

In the treatment of human diphtheria, therefore, Schick and his colleagues recommend (1) that the injection be given at the earliest possible moment; (2) that it be given intramuscularly; (3) that in all mild and medium cases of diphtheria (and these make up about 90 per cent. of all cases) a single dose of 100 units of antitoxin per kilogram suffices, and (4) that in the severest cases, 500 units per kilogram may be injected. In other words, in a child weighing 20 kg.

---

[1] Park, William H.; Zingher, A., and Serota, M. H.: Active Immunization in Diphtheria and Treatment by Toxin-Antitoxin, The Journal A. M. A., Sept. 5, 1914, p. 859.

[2] Schick, B.; Kassowitz, K., and Busacchi, P.: Experimentelle Diphtherie Serum-Therapie beim Menschen, Ztschr. f. d. ges. exper. Med., 1914, iv, 83.

[3] An Early Test for Susceptibility to Diphtheria, Editorial, The Journal A. M. A., April 11, 1914, p. 1176.

[4] A kilogram is equal approximately to 2⅕ pounds avoirdupois.

(or 44 pounds), 2,000 units will, in 90 per cent. of the cases, suffice, while in 10 per cent. of the cases of the most severe type a dosage of 10,000 units may be given. In an adult weighing 60 kg. (or 132 pounds) a dose of 6,000 units will suffice in all the ordinary cases, whereas in the severest cases a single dose of 30,000 units may be given.

One of the most important of Schick's observations is that repeated injections of the serum are superfluous and not warranted. Even in the severest cases, he asserts that if a dose of 500 units per kilogram be injected immediately the greatest good possible will be obtained. Subsequent injections of antitoxin after six, twelve or twenty-four hours are, he maintains, unnecessary, for any further effect of toxin is prevented by a single dose of the size mentioned. If the diphtheria patient dies, it is because the toxin elaborated by the organisms in his body has had time to act before the antitoxin was injected, and cannot by any means as yet known to us be afterward inactivated. The only circumstance in which a second injection is of value is when the first injection given has been smaller in dose than the optimal doses recommended; then one may give a single dose of 500 units per kilogram.

In exposed persons requiring a prophylactic immunizing dose, a single injection of 50 units per kilogram is sufficient.

If the conclusions drawn by Schick and his colleagues from these interesting studies be correct, it is obvious that the practitioner will, from now on, be provided with a precise method of treating diphtheria patients hitherto much desired. It would appear that the enormous doses sometimes given of 100,000 units, or more, of antitoxin are wholly unnecessary, involving large expense and much inconvenience to the patient, especially where repeated injections have been given. One would, of course, not shrink from the expense or from the inconvenience, could a single life be saved thereby; but Schick's studies seem to indicate that in most cases 100 units per kilogram, and in a few severest cases 500 units per kilogram, given in a single dose, yield the maximal protective effect at present obtainable.

THE NATURE OF THE NERVE IMPULSE

Many views have been advanced with regard to the nature of the conduction processes in nerves. Naturally so fundamental a phenomenon as the passage of an impulse along a nerve cannot fail to awaken speculation on the part of anyone who is accustomed to think critically about physiologic processes. With the accumulation of new facts bearing on the question old theories have been abandoned and new hypotheses in turn advanced. The mere review of some of these is of interest as an illustration of the way in which science sometimes progresses. Thus, it has been suggested that the whole nerve moved like a bell rope; that the nerve was a tube, and that a biting acid flowed along it; that the nerve contained an elastic fluid which was thrown into oscillations; that it conducted an electric current like a wire; that it was composed of definitely arranged electromotor molecules which exerted an electrodynamic effect on each other; that it was made up of chemical particles which, like the particles of powder in a fuse, underwent an explosive change, each in turn exciting its neighbor; that the irritant caused a chemical change, which produced such an alteration of the electrical condition as to excite the neighboring parts to chemical change and thereby to electrical change, and so alternating chemical and electrical changes progressed along the fiber in the form of a wave; finally, that the molecules of the nerve substance underwent a form of physical vibration analogous to that assumed for light.[1]

Even at present, students of the subject are still divided into two camps, one of which inclines to a physical theory of nerve conduction, the other to a metabolic or chemical theory. We know, at any rate, that there is no mechanical change in the nerve. If the nerve serves merely as a conducting medium in a purely physical sense, one would not expect much, if any, expenditure of energy in the process. The lack of any heat production in stimulated nerves[2] appears like decided evidence against the idea that irritability is primarily a chemical phenomenon. Heat changes are characteristic of metabolism. On the other hand, convincing evidence has gradually accumulated tending to show certain small chemical changes incident to the excitatory processes in nerves from the fact that, in the complete absence of oxygen, the nerve fibers lose their irritability, and that the latter may be restored by readmission of oxygen to the nerve.

By the use of an ingeniously contrived apparatus, the biometer, in which amounts of carbon dioxid as small as 0.000,000,1 gm. can be measured, Tashiro[3] has demonstrated in the laboratories of the University of Chicago not only that all living nerves give off carbon dioxid—a sign of chemical change—but also that their metabolism increases on stimulation. These facts have now been supplemented by Tashiro and Adams[4] in harmony with the argument that the primary basis of protoplasmic irritability must be a chemical one. Their new evidence shows that, in the absence of oxygen, nerves have a far lower output of carbon dioxid than in air, and that stimuli which more than double the output in air fail to give any increase in an atmosphere of hydrogen, that is, an oxygen-free medium. Oxygen is therefore primarily concerned with the metabolism of nerves.

---

1. Lombard, W. P.: General Physiology of Muscle and Nerve, American Text-Book of Physiology, edited by Howell, 1896, p. 97.
2. Hill, A. V.: Jour. Physiol., 1912, xliii, 433.
3. Tashiro, S.: Am. Jour. Physiol., 1913, xxxii, 107; ibid., 1914, xxxiii, 38.
4. Tashiro, S., and Adams, H. S.: Carbon Dioxide Production from the Nerve Fiber in a Hydrogen Atmosphere, Am. Jour. Physiol., 1914, xxxiv. 405.

The foregoing facts are no proof that oxidative change or metabolism in the nerve is the forerunner or cause of its conductivity. They might, of course, express the effect of the change in the state of excitability. Whatever the future may finally say to the question whether nerve fibers can function independently of chemical changes, it now seems certain that active metabolism in the nerve fiber is a fact; and, quoting the Chicago investigators, the incorrect assumption of an absence of metabolism can no longer be used by the physical school to support their argument.

ACETYLCHOLIN AND ERGOT PREPARATIONS

Some time ago, in a discussion of the active principles of ergot,[1] attention was called to the discovery by the pharmacologist Dale and the chemist Ewins of acetylcholin in certain preparations of ergot. The physiologic action of this base had already been investigated by Hunt and Taveau,[2] who pronounced it to be far the most powerful circulatory depressant known. Its occurrence, therefore, in preparations of ergot intended for medicinal use naturally aroused considerable interest, for the question arose whether it might not add to the dangers of this drug. Dale[3] now reports an extensive study of this and of some other derivatives of cholin. He confirms the observations of Hunt and Taveau as to the extraordinary activity of this substance; indeed, he finds it even more active than did these authors, for whereas the latter found 0.000,005 mg. injected intravenously into a rabbit to cause a fall of blood-pressure, Dale reports such a result from "the almost incredibly minute amount of 0.000,001 mg. (the one-millionth part of a milligram)."

Fortunately this extraordinarily active substance is only exceptionally found in medicinal preparations of ergot, and then as a rule only in minute amounts; still Dale found as much as 0.2 mg. per cubic centimeter in one such preparation. This amount injected intravenously into a human being would undoubtedly cause most alarming symptoms; it would be harmless by the mouth and probably if given subcutaneously, for acetylcholin is rapidly destroyed in the tissues. In these days when the administration of drugs intravenously is increasing and when manufacturers are placing so many new preparations for such use on the market it would be well for a physician considering this use of an ergot preparation to bear in mind the possible occurrence in it of acetylcholin. There are no chemical tests by which this substance, even when present in dangerous amounts, can be recognized, but there are physiologic tests by which the most minute amounts may be detected. Any preparation of ergot intended for intravenous use should be subjected to these tests; it might be well also to test those prepared for subcutaneous use, for Hunt and Taveau found doses of 0.1 mg. injected subcutaneously into cats to cause a pronounced fall of blood-pressure.

Aside from this practical aspect of the occurrence of acetylcholin in ergot, the substance itself is of much scientific interest. It is easily prepared from cholin and certain simple derivatives of acetic acid. Cholin is probably a constituent of all living cells; it has been found in the blood and in all organs investigated (beginning with its discovery in the adrenal glands by Hunt in 1902). The animal body always has derivatives of acetic acid available for synthetic purposes; when benzoic acid, for example, is taken it is quickly excreted as hippuric acid, that is, as a compound of benzoic and amino-acetic acids. May not conditions arise in the body under which cholin may unite with acetic acid to form acetylcholin just as this substance is formed by the fungus of ergot? Or is it not possible that the body itself may form such a compound for some of its own purposes just as it forms epinephrin? Some of these questions were raised by Hunt several years ago and are again brought up by Dale. As Dale states, we have in epinephrin a substance having a special affinity for one great division (the true sympathetic) of the autonomic nervous system; it is formed in the body and utilized by it for the purpose of stimulating the endings of the nerves of this system. Acetylcholin, on the other hand, has little or no effect on the true sympathetic nerves, but has a specific action on the other great division of the autonomic nervous system—the cranial and sacral (or parasympathetic) division, which supplies the sphincter of the iris, the inhibitory nerves to the heart, the motor and secretory nerves to the alimentary tract, etc. Epinephrin is a very unstable substance; it is secreted, under certain conditions, by the adrenal glands, fulfils its physiologic functions and is then destroyed. Acetylcholin is a more active substance, but in a different way, than epinephrin; it is even more readily destroyed. May it not function as a hormone in the same, but in a complementary or antagonistic way, as does epinephrin? Its instability may have prevented its detection just as the secretion of epinephrin was long overlooked. As Dale says, these questions are of great interest, but for the discussion of which little evidence is at present available; there is no known depot in the body of cholin derivatives as there is in the case of epinephrin, or indeed any evidence that a substance resembling acetylcholin exists in the body at all. It is true, as Dale recalls, that Hunt[4] found evidence of the existence of a substance in the suprarenal glands which was not cholin itself, but which readily yielded cholin in the process of extraction, and which was from fifty to a hundred times as active as cholin; the nature of this substance has not, however, been determined.

---

[1] Active Principles of Ergot, editorial, The Journal A. M. A., June 20, 1914, p. 1969.

[2] Hunt and Taveau: Hyg. Lab. Bull. 73, U. S. P. H. S., 1911; Brit. Med. Jour., 1906, ii, 1788.

[3] Dale: Jour. Pharmacol. and Exper. Therap., 1914, vi, 147.

[4] Hunt: Am. Jour. Physiol., 1899, iii, 18; 1901, v, 11; Brit. Med. Jour., 1906, ii, 1788.

This work illustrates some of the lines of work in modern pharmacology; the results are of immediate practical as well as scientific interest. The best results are obtained when a pharmacologist can cooperate with a skilled organic chemist. It is unfortunate that there are not more laboratories in this country where such cooperation is possible.

LOSS OF LIFE BY EXPLOSIONS IN THE MILLING INDUSTRY

Statistics sometimes surpass all forms of direct argument in emphasizing the need of reforms relating to the public health. In this belief we cite from a preliminary report published by the Millers' Committee of Buffalo[1] the fact that in thirteen investigated explosions which have occurred in grain mills and similar industrial plants in very recent years in this country, at least seventy-eight men were killed and 119 injured. Incidentally, the total damage to property exceeded $2,000,000. In four explosions in Europe since 1911 — two in dextrin works, one in a provender mill grinding peas, beans and wheat, and one in a linseed mill — the human loss is expressed by forty-seven killed and 119 injured.

Surely some consideration of methods pertaining to the prevention of such explosions is called for. It has already developed from Dr. Brown's laboratory study of the problem[1] that most, if not all, grain dusts are more inflammable than standard coal dust (which has long been recognized as a source of danger in the industries). Grain dusts in most cases develop higher pressures on explosion, especially at the lower temperatures. The preliminary observations seem to indicate that the dusts from oats and yellow corn are more inflammable than those from wheat and other grain.

The investigations of the Millers' Committee indicate a difference in the inflammability of dried and undried dusts. In nearly every case the pressure developed on explosion was increased appreciably after drying. The result of a decrease in the humidity of the air is thus suggested.

Various causes have been assigned to many of the explosions in milling plants in this country and abroad, among them the use of open lights, or naked flames, such as lamps, torches, gas jets, lanterns, candles, matches, etc.; property fires; introduction of foreign material in grinding machines; electric sparks from motors, fuses, switches and lighting systems, and static electricity produced by friction of pulleys and belts, grinding machines, etc.

The field-engineering inquiries of the Buffalo investigators indicate that a large number of the recent explosions and fires have been caused by the introduction of foreign material into grinding machines. It would appear that a possible means of prevention would be to devise some system by which the foreign material might be removed before it reached the mill. For the present, it is recommended in a practical way that prevention of explosions may be assisted by complete electric-lighting systems, the use of portable electric lamps instead of lanterns or naked lights, the enclosing of the electric-light bulbs in strong wire guards or protectors, and the possible use of vapor-proof globes, and the locating of all fuses, switches, starting-boxes, motors, etc., at points where no dust is present. It is also advised to have the receiving bins from the grinding machines as small as practicable with the operations, as increased size gives increased space for dust clouds and, therefore, opportunity for a more violent and destructive explosion.

THE MOVEMENTS OF THE VILLI OF THE SMALL INTESTINE

In addition to their epithelial covering and their vascular and lymphatic arrangements, the villi of the small intestine contain masses of unstriated muscle fibers. These pass up from the muscularis mucosae through the villus, to be attached partly to the outer surface of the central lacteal, partly by expanded extremities to the basement membrane covering the surface of the villus. This combination of contractile structures, of which some run longitudinally along the lacteal spaces and others circularly about them, appears to afford an efficient mechanism whereby pressure can be exerted on the contents so that they are pumped into the communicating lymph spaces. Contractions of these muscle fibers are thus believed to tend to empty the central lacteal into the deep plexus of lymphatics and perhaps also to cause an expulsion of the contents of the spaces of the retiform tissues of the villus into the central lacteal.

For the most part the description of the function of the muscular mechanism of the villus has been limited to probabilities suggested by the facts of its anatomic structure. Direct observations of the motion of intestinal villi have lately been made by Hambleton[1] in the physiologic laboratory of the medical department of Vanderbilt University of Nashville. In animals that have been fasting the villi are generally found, on suitable microscopic examination, to be extended, fallen over in various directions, and covered with a mucus-like substance. Local application of solutions of a great variety of substances, for example, peptone, glucose, bile, saline, etc., is promptly followed by a rising of the villi and the beginning of lashing-like movements in various directions. Soon a second distinct movement begins, consisting in an alternating shortening or retraction and an extension of the villi. These movements are independent of peristalsis. They may be checked by local application of 0.1 per cent. hydrochloric acid and influenced by the introduction of drugs into the circulation.

---

[1] Brown, H. H.: The Explosibility of Grain Dust, Jour. Indust. and Engin. Chem., 1914, vi, 934.

[1] Hambleton, B. F.: Note on the Movements of the Intestinal Villi, Am. Jour. Physiol., 1914, xxxiv, 446.

The observations, which have been quite constant on all animals examined, lead Hambleton to conclude that the "lashing" movements, which are not stopped by atropin, may aid in the mixing of the intestinal contents and thus promote the action of the digestive secretions as well as the process of absorption. The other forms of movement—retraction and extension—are probably of special value in the act of absorption, particularly through the lacteals. This type is abolished by both nicotin and atropin, a sign that it is under the control of the peripheral nervous mechanism. It seems strange that activities which can apparently be observed so easily have attracted so little attention on the part of investigators.

Current Comment

ARE THERE EXPECTORANT DRUGS?

When one stops to consider the prescriptions of alleged expectorants which are written literally by the hundreds day after day it may seem somewhat captious to ask whether the practice has any admitted scientific basis. Expectorants have been defined as agents which facilitate the removal of secretion from the air passages. This is accomplished by the movements of the cilia in the bronchial passages, by the act of coughing, or by the combined action of these agencies. The expectorant can facilitate the desired process by inducing a more abundant secretion into the respiratory passages or one which serves to dilute, as it were, a tenacious mucus and render it more easily transported out of the recesses to which it adheres. An even more effective participation in the expectorant process lies in the possibility of stimulating the musculature of the bronchi and thus accelerating the mechanical features of the act. By analogy this might be looked on as a sort of peristalsis of the contractile tissues involved. Wherever one turns, in the text-books and scientific journals, there is an extreme dearth of trustworthy information as to the mode of action of even the most widely used expectorants. This fact has been emphasized anew by Miller[1] of Chicago, who has searched for accurate bedside observation on the value of this class of drugs. The present situation may be summed up by admitting that the bedside study of the action of expectorants offers at present insurmountable difficulties. Admixture of saliva, the loss or gain of water in the respiratory tract, and other factors influencing the amount and viscosity of sputum, apart from the spontaneous changes that may occur as an incident of disease, offer variables too complex to untangle in human patients. Observations on animals, particularly on the exposed bronchial mucosa, have furnished the chief reliance for evidence of positive effects.[2] Miller has interpreted the available results with the conclusion that ammonium carbonate and ammonium chlorid and the emetic group of expectorants, as apomorphin and ipecac, when given in sufficiently large doses to animals, increase bronchial secretion. Ammonium salts by mouth in moderate doses do not increase bronchial secretion in the dog. Apomorphin and emetin when given to dogs in quantities considerably greater than the ordinary therapeutic dose for man do not excite increased bronchial secretion. In view of so much negative evidence it may be worth while again to investigate the evidence on which is based the custom of giving this class of drugs.

THE COLLOIDAL GOLD REACTION IN EXAMINATION OF THE CEREBROSPINAL FLUID

Within recent years the examination of the cerebrospinal fluid has become of importance in conditions in which the meninges are involved, particularly if syphilis of the central nervous system is suspected. The information thus obtained is valuable as an index to the efficiency of treatment and also as an aid to diagnosis. The value of the Wassermann test and of determination of the cell-content of the cerebrospinal fluid in such cases is established. Abderhalden's method for the detection of certain ferments has not been perfected to the point which makes it practical for general diagnostic purposes in this field. The importance of the colloidal gold reaction, otherwise known as Nonne's or the gold chlorid test, has been recognized for some time, but until recently few have known within what limitations its value lay. It is essentially a test for an increase in the globulin content of the cerebrospinal fluid, using delicate color reactions in a standardized solution of colloidal gold as an indicator. The requisites for the test are cerebrospinal fluid obtained without a trace of blood, scrupulously clean glassware, and a colloidal gold solution prepared with extreme care. With these essentials at hand the performance of the test is comparatively simple. Miller and Levy[1] give explicit directions for preparing the solutions and performing and interpreting the results, together with an extended series of observations in which the results of Wassermann test on the blood and cerebrospinal fluid, cell and globulin estimation on the fluid and the colloidal gold reaction are compared in a great variety of clinical conditions. These tables show that normal cerebrospinal fluid gives negative reactions, but that in inflammatory conditions of the meninges, as tuberculous and purulent meningitis, the test is positive; hence it is of no value in distinguishing between these and syphilis. The reaction is inconstant in secondary and tertiary syphilis, and has no advantages over other diagnostic procedures in these conditions. The evidence seems to show that the colloidal gold reaction is most constant in general paresis and hence will be found of most value in the differentiation of this condition from others with which it might be confused. The authors suggest that this test may be found more sensitive than others now employed for indicating the results of specific therapy in syphilitic diseases of the central nervous system. The report is an example of what should be done with every new procedure either curative, prophylactic or diagnostic. Tests should be made in large numbers of diverse conditions and conservative conclusions drawn from the results as to the value and limitations of the procedure in question.

---

[1] Miller, J. L.: The Clinical Value of Expectorants, Am. Jour. Med. Sc., 1914, cxlviii, 469.

[2] The work of V. E. Henderson and A. H. Taylor (Expectorants, Jour. Pharmacol. and Exper. Therap., 1910, ii, 153) deserves especial mention in this field.

[1] Miller and Levy: Bull. Johns Hopkins Hosp., 1914, xxv, 133.

SUGAR UTILIZATION BY DIABETIC ORGANS

The successful employment of surviving organs of the body in the study of the functions of the living cells has given an impetus to the investigation of problems which seemed impossible of attack by the older methods. Glandular structures like the kidneys, muscles like the heart, and complexes of tissues like the intestines—all continue their usual performances for some time when they are supplied artificially with aerated blood or physiologic saline solution. It is now understood that such functioning tissues may use sugar which is supplied with the nutrient perfusion liquid. This fact has given an opportunity to compare the sugar-consuming capacity of organs from normal animals and those which have been rendered diabetic. The question to be answered is this: Have the tissues of diabetic individuals lost the capacity to utilize sugar in the usual manner? Hitherto the attempts to answer this question by studying the metabolism of isolated organs have been confined essentially to the perfused heart. The results have been quite uncertain, owing perhaps to wide variations in the stored carbohydrate of the cardiac muscle which could not be estimated in advance. Newer investigations, on surviving intestine, conducted in some of the university laboratories at Budapest[1] have failed to evidence any difference between the intestine of the normal and the diabetic with respect to the utilization of sugar in the way indicated. Even after removal of the pancreas and the initiation of severe glycosuria the isolated tissue can still cause the usual disappearance of sugar from the medium that bathes it. It is important, at this stage of our knowledge of diabetes, not to consider the disappearance of sugar as identical with an actual combustion thereof to its ultimate products of metabolism, carbon dioxid and water. There are too many facts which speak against the retention of a normal capacity to burn up carbohydrates in pancreatic diabetes.[2] For the present we may reconcile the findings by the hypothesis that the katabolism of sugar occurs in stages. The oxidative stage is presumably interfered with by the diseased condition; a preliminary alteration of the sugar molecule may still be possible even in the pathologic organism.[3]

HEALTH CONDITIONS IN THE NAVY

According to the annual report of the Surgeon-General of the Navy,[1] this branch of our national defense, from a medical point of view is prepared to meet at least all peace-time demands. A summary of conditions during the year includes, among other important problems, the outbreak of small-pox on the *Ohio*, which was particularly noted by the lay press at the time. It will be remembered that there were twenty-nine cases of small-pox with five deaths. No cases occurred on the *Vermont*, although her men, examined and vaccinated just before sailing, were exposed in the same manner as those of the *Ohio*. An investigation showed, however, that no vaccination had been done on the *Ohio* for two years before the outbreak, and vaccination of the crew immediately after gave almost 90 per cent. of takes, about what would be expected in an unprotected community. Among 100 recruits received on the *Ohio* shortly before sailing for Europe and vaccinated at that time, not a single case occurred. The report mentions also a slight increase in malaria, which is accounted for by the cases occurring on ships in Mexican waters. The Surgeon-General suggests that the white uniforms of the "bluejackets" be replaced by something of a more serviceable nature, for example, khaki or forestry green. He comments frequently on the need for a hospital ship to accompany each fleet, especially in relation to the operations at Vera Cruz, and the lessons to be gained by their study. This report represents an accurate and informative discussion of the high quality of work in this service.

A NOTE ON THE NON-SPECIFICITY OF CYTOTOXINS

It has been demonstrated that the injection of certain cells into an animal of a foreign species results in the production of cytotoxins in the serum of that animal, but the opinions still differ as to whether or not these cytotoxins are specific for the particular tissue constituting the antigen. Lambert,[2] investigating this question, used tissues growing *in vitro*, which has the advantage over the other methods used by previous investigators of eliminating agglutination, thrombosis and hemorrhages, factors to which Pearce attributed some of the most striking lesions found in organs and tissues after the injection of cytotoxic serums. Rat sarcoma and embryo skin of rats, being suitable for this method, were injected into guinea-pigs, and the serum tested as to its inhibitive action on the growth of these tissues. Lambert found no specificity in the action of cytotoxins. The serum of animals injected with rat sarcoma inhibited the growth of this tissue as well as of the skin of embryo rats and vice versa. The injection of rat blood resulted in the production of substances toxic to these same tissues also, though to a less marked degree. Using the same technic, Lambert obtained similar results with tissues from the embryo chick.

---

[1] Verzár, F., and Krauss, J.: Die Verbrennung des Zuckers im Pankreasdiabetes. III. Mitteilung. Der Zuckerverbrauch des überlebenden Darmes von pankreasdiabetischen Hunden, Biochem. Ztschr., 1914, lxvi 48.

[2] Variations in the Content of Sugar in the Blood, editorial, The Journal A. M. A., Jan. 10, 1914, p. 131; Dietary Treatment and the Sugar Content of the Blood in Diabetes, ibid., Aug. 22, 1914, p. 688; Where is Sugar Burned in the Body, ibid., Dec. 6, 1913, p. 2072.

[3] Cf. Verzár, F.: Die Verbrennung des Zuckers im Pankreasdiabetes. V. Mitteilung. Biochem. Ztschr., 1914, lxvi, 75.

[1] Annual Report of the Surgeon-General, U. S. Navy, for the fiscal year, 1914. Government Printing Office, Washington, 1914.

[2] Lambert: Jour. Exper. Med., 1914, xix, 277.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

ARKANSAS

Hookworm Infection in Howard County.—In the southern part of Howard County 22 per cent. of 300 people examined are reported infected with hookworm.

Personal.—Dr. Charles W. Garrison, Little Rock, head of the Rockefeller Hookworm Commission work in Arkansas, and assistant secretary of the State Board of Health, has been elected secretary and state health officer to succeed Dr. Frank B. Young, Springdale, who resigned to take the superintendency of the State Hospital for Nervous Diseases. Dr. Garrison has just been appointed collaborating epidemiologist for the government public health service for Arkansas.——Dr. James L. Greene, superintendent of the State Hospital for Nervous Diseases, Little Rock, has resigned. In a statement published by Dr. Greene, it is stated that the cause of his resignation was the enmity of the secretary of the State Charities Board, the reason for this enmity being that Dr. Greene refused to allow a tent to be installed on the hospital premises for the use of a brother-in-law of the secretary of the board, who is suffering from tuberculosis. Resolutions deploring the opposition of members of the State Board of Charities, which resulted in the resignation of Dr. James L. Greene as superintendent of the State Hospital for Nervous Diseases, were adopted by the Social Service Club of Pulaski County and the United Charities of Pulaski County, November 25.

CALIFORNIA

Medical Department Reorganized.—In accordance with regulations, an order was issued November 27, by the adjutant general dividing the medical department of the National Guard of the state into a medical and a hospital corps.

Personal.—Dr. Curtis H. Castle, Merced, a practitioner of the city since 1887, and once congressman from the district, has retired and his practice has been taken over by Dr. Edwin R. Fountain of Portland, Ore.——Dr. Frederic E. Shaw, city commissioner of finance of Sacramento, is reported to be seriously ill.

Mayor Must Be Physician.—Under the new charter amendments which were voted on favorably at Santa Monica, December 2, the city has adopted the commission form of government and the provision is made that the mayor shall serve as health officer. Under the old charter it is provided that the health officer shall be a graduate of a reputable medical college and that he shall practice medicine for at least five years. The first municipal election, under the new form, will be held in December, 1915.

GEORGIA

New Baptist Hospital.—The plans for the new Georgia Baptist Hospital, Atlanta, have been prepared. The new building will cost about $500,000 and will be composed of five units, each containing about 100 beds. One of the units is to be devoted exclusively to the treatment of children.

Personal.—In a $200,000 fire, at Eastman, November 24, the office of Dr. John Cox Wall was burned and a building owned by Dr. John B. Clark was also destroyed.——Dr. James T. Ross, Macon, has been elected chairman of the Bibb County Board of Health.——Dr. James D. Weaver, Eatonton, has been appointed a member of the State Board of Health.——Dr. William C. Thompson, Dublin, has opened the new Thompson Private Sanitarium at Dublin.——Dr. Wyman W. Pilcher, Warrenton, has been appointed official district examiner by the board of trustees of the State Sanatorium.

ILLINOIS

Personal.—Dr. George G. Craig, Jr., has resigned as city physician of Rock Island.——Dr. Cyrus T. Foster, Rock Island, was seriously injured in a collision between his automobile and a trolley car, November 20.

New Hospital.—Dr. James W. Pettit and associates, Ottawa, announce that the Illinois Valley General Hospital will be built on the South Bluff, west of the Ottawa Tent Colony, during the next year, at an expenditure of from $50,000 to $75,000. The first three buildings are to be the administration building which will be flanked on either side by an annex connected by corridors. Especial attention is to be given to the open-air treatment, and all classes of ailments will be treated at the institution.

Chicago

Public Health Exhibit.—A public health exhibit was opened at the City Club, 315 Plymouth Court, November 30, and will remain open until January 16. The exhibits include infant welfare, showing what it adds to the health of the community by the prevention of infant mortality and the limitation of illness; tuberculosis and the life-saving tendency of the education of the people; school hygiene, showing the protection and conservation of the younger generation; food inspection and the method in which food inspection protects against infection, dirty food and harmful adulterants; patent medicines and the good work of the crusade against these harmful products; environmental conditions and the dependence of the people for life and welfare on good surroundings, and that of the Chicago Department of Health and the Municipal Tuberculosis Sanatorium, showing how the administration of public health acts as an instrument for bettering the physical condition and health environment of the community. The greater part of the exhibit is devoted to pictorial charts and maps, graphic representations, etc. The display of the environmental conditions exhibit is one of the most effective: tiny models show a schoolroom with blackboard properly and improperly lighted with good and bad service; proper and improper lighting of a machine in a factory; the living room with four systems of lighting illustrated one after the other; good and bad printed paper, etc. Taken as a whole, the exhibition is creditable but would be more valuable were it less didactic and more pedagogic.

INDIANA

Tuberculosis in Richmond.—A special committee for Earlham College, Richmond, as the result of a sanitary survey, in reference to tuberculosis conditions in Wayne County, ascertained that there are more than 500 cases of tuberculosis in the city of Richmond alone.

Hospital Units Opened.—Two new units of the Indianapolis City Hospital were formally dedicated November 29, the principal address at the ceremony being delivered by Dr. Charles A. L. Reed, Cincinnati. These units have been named the Burdsal Units as they were donated to the city by the late Alfred Burdsal. They have been erected at a cost of $250,000, are three-story structures and provide accommodations for 250 patients. In order to furnish and equip these units, it has been necessary for the city board of health to negotiate a loan of $65,000.

Personal.—Dr. Abner H. Chaffee, Huntington, 86 years of age, was elected treasurer of Huntington County, at the November election and will assume the duties of his office January 1, next. Dr. Chaffee has been practicing medicine in Huntington since 1856, and during the Civil War he served as surgeon to the Seventy-Fifth Indiana Volunteer Infantry.——Dr. Paul E. Bowers, physician in charge of the Indiana State Prison, Michigan City, has delivered a series of lectures on clinical criminology at Valparaiso University.——Dr. Charles P. Cook, New Albany, was operated on for appendicitis at St. Edward's Hospital in that city, November 26.——Dr. Mavity J. Spencer has been appointed police surgeon of Indianapolis, succeeding Dr. Thomas L. Sullivan, Jr., who has been appointed superintendent of the City Hospital.

IOWA

Testimonial Dinner to Mayo.—The Des Moines Pathological Society gave a testimonial dinner to Dr. William J. Mayo, Rochester, Minn., November 28, at which more than

200 physicians were present. In the evening Dr. Mayo delivered an address on "The Septic Factors in the Three Great Plagues."

Personal.—Drs. Joseph C. Powers and Claude F. Osborne, Hampton, announce that they are about to discontinue the practice of medicine in order to prepare themselves for special work in connection with the new Lutheran Hospital. Dr. Osborne is to be surgeon in charge of the new hospital and Dr. Powers is to specialize on diseases of the eye, ear, nose and throat.——Dr. James Alderson, Dubuque, was seriously injured in a collison between his buggy and an automobile, November 21.——Dr. William A. Guild, Des Moines, has arrived in Paris and joined the medical staff of the American Hospital.

Annual Clinic at Medical College.—The physicians of the state were invited to attend the sixth annual clinic of the College of Medicine of the State University of Iowa, Iowa City, December 8 and 9. They were welcomed by the president of the university and on the first day clinics were conducted by Dr. Lee W. Dean of the university, and Dr. Reuben Peterson of the University of Michigan; in the afternoon laboratory demonstrations were given by the following members of the faculty: Drs. Henry J. Prentiss, John T. McClintock, Charles S. Chase and Henry Albert; a clinic on internal medicine was held by Dr. Campbell P. Howard, and after this a visit was paid to the new wing of the University Hospital. On the second morning clinics were given by Drs. Clarence E. Van Epps and John B. Kessler of the university faculty and Dr. Dean D. Lewis, Chicago; and in the afternoon a clinic was given by Dr. Charles S. Grant of the medical faculty, after which an inspection of the university buildings was made.

MINNESOTA

Personal.—Dr. George H. Freeman gave a dinner at the St. Louis Hospital for Inebriates, Willmar, November 24, in honor of Dr. H. W. Hill, executive secretary of the Minnesota Public Health Association. After the dinner an address was given by Dr. Hill before the Commercial Club.——Dr. Gertrude Booker Granger has succeeded Dr. John E. Crewe as whole-time health officer of Rochester.

MISSOURI

Physicians Fill Pulpits.—It is planned to have physicians occupy the pulpits in all the churches of St. Joseph on the Sunday in May next, immediately preceding the meeting of the State Medical Association.

Free Clinic Opened.—A free medical clinic is to be opened in a short time at Admiral Boulevard and Harrison Street, Kansas City. The institution will be a revival of the old Post-Graduate Hospital, which was discontinued some time ago. Dr. C. Lester Hall is president of the new organization.

State to Sell Diphtheria Antitoxin at Low Price.—The State Board of Health has made arrangements for distributing antitoxin at prices ranging from 40 cents for 500 units to $4 for 10,000 units. The city of St. Louis already distributes antitoxin free to persons who cannot afford to buy it, but it is said that many who cannot afford to pay the prices charged by druggists for antitoxin, hesitate to apply for it as paupers. The number of cases of diphtheria reported in St. Louis for five weeks up to November 23 was 546.

New Hospital.—The plans for the Public Hospital bequeathed to St. Joseph by the late Charles W. Noyes have been completed. Mr. Noyes left a bequest of $250,000 to be applied to the erection and maintenance of a hospital to bear his name and the hospital is to be located at Frederick Avenue and Twenty-Fourth Street.——Papers of incorporation of St. Joseph's Hospital, Kansas City, were signed November 30. The building is to cost $500,000 and will be of brick and stone, six stories in height and in the form of an X, and will accommodate about 250 patients.

St. Louis

Leper Found in St. Louis.—The city bacteriologist has diagnosed leprosy in the case of a Greek who came to America in 1912. It is expected that he will be deported by the immigration authorities.

Preventive Medicine Lectures.—A series of lectures on preventive medicine is being given by the Social Service Department of the St. Louis Children's Hospital in the lecture room of that institution on Tuesday afternoons. The series began November 24 and will end January 5.

Free Antitoxin.—Health Commissioner Max C. Starkloff announces that he will apply to the municipal assembly for an appropriation of $3,600 to cover the expense of the free distribution of diphtheria antitoxin by the city. He also states that he will prepare and have presented before the legislature at the January session, a plan providing for the erection of a state bacteriological laboratory in which diphtheria antitoxin will be made and distributed free or at cost.

Medico-Historical Loan Exhibit.—The St. Louis Medical History Club opened a loan exhibit at Jefferson Memorial, December 5. The exhibit is to remain open for two weeks and includes many matters of historical interest, not only to physicians, but to all citizens. Among these are, an autographed letter from Dr. Moses L. Linton in 1847 accepting the professorship in obstetrics and diseases of women in St. Louis University; another from Dr. William Beaumont in 1836, accepting the chair of surgery; other documents of interest are, a petition presented in 1836 appealing for financial assistance for the medical department and an autographed letter from Dr. Daniel Brainard, accepting the chair of anatomy and another autographed letter from William Greenleaf Eliot, accepting as trustee for the medical department; valuable portraits were contributed by Washington University; rare old books have been loaned by Dr. Edward C. Streeter, Boston, and the John Crerar Library, Chicago; and valuable documents have been contributed by Dr. William Pepper, Philadelphia, and the Surgeon-General of the Army.

NORTH CAROLINA

Personal.—Dr. Claude L. Pridgen, Kinston, formerly connected with the State Board of Health, has located in Wilmington.——Dr. Clyde H. Hemphill, Drexel, has returned from New York and will locate in Goldsborough, limiting his practice to diseases of the eye, ear, nose and throat.

Hospital Notes.—Irvin Memorial Hospital, Mount Airy, was formally opened November 12. The building has been erected by Mrs. A. B. Irvin as a memorial to her son, Leonard Irvin. It is a two-story and basement building, fully equipped and has accommodations for thirty patients.——Rex Hospital, Raleigh, held its annual remembrance or donation day, November 11.

NEW JERSEY

Personal.—Dr. Frank H. Carber, Newton, has succeeded Dr. Edward A. McLaine as chief resident physician to the Scranton State Hospital.

Medical Staff Resigns.—The medical staff of All Souls Hospital, Morristown, has resigned in a body to take effect January 1, unless the board of managers make certain changes which the physicians assert are necessary for the proper conduct of the hospital.

Diphtheria.—To November 17, 119 cases of diphtheria had been reported in Jersey City. Dr. Frank H. Edsall, Wilmington, Del., city health superintendent, stated that the city board of health was handicapped by the lack of a well-equipped laboratory and city bacteriologists.

Precautions in Construction of Water Reservoir.—Atlantic City is now building an addition to its storage water reservoir, and in order to protect the water-supply is making a test of its workmen on the job. Dr. Edward Guion, chief of the health department, is making Widal tests in order that no typhoid carrier shall take part in the work on the reservoir.

NEW YORK

New Counsel for Medical Society.—The Medical Society of the County of New York has appointed George W. Whiteside as its counsel. He has been on the staff of the district attorney for seven years.

Personal.—The trustees of the Clifton Springs Sanitarium Company have elected Dr. Malcolm S. Woodbury, superintendent, vice Dr. James G. Mumford, deceased.——Dr. Orie M. Grover, Dunkirk, has been appointed associate physician to the State Reformatory for Women, Bedford Hills.——Dr. Joseph E. Clark has entered on his work as sanitary superintendent for the counties of Oneida and Herkimer.——Dr. Clinton P. McCord, Albany, has been appointed chairman of a committee to organize the open-air-school workers of the state. This movement is closely associated with that for medical examination of schoolchildren and school buildings.

Physical Educators Organize.—At the annual convention of the New York State Teachers' Association in Albany, N. Y., November 23-25, the school medical inspectors and

work in northern Egypt.——Dr. Peter J. Christofferson, Waupaca, had a finger amputated at St. Mary's Hospital, Oshkosh, as the result of an infected wound.——Dr. Henry A. Peters has been elected vice-president, and Drs. Michael R. Wilkinson and Walter S. Wing have been elected directors of the Oconomowoc branch of the Wisconsin Antituberculosis Association.——Dr. Sidney H. Wetzler, Milwaukee, sustained severe burns of the shoulders and chest by the overturning of his automobile, November 7.

Report on Tuberculosis Sanatorium.—The third biennial report of the Wisconsin State Tuberculosis Sanatorium has just been issued. There has been a marked increase in the number of patients treated during the last two years, during which time the capacity of the sanatorium has been increased by the erection of two new patients' cottages and an infirmary, having a combined capacity of fifty-five beds. A new two-story cottage is now being built, which will increase the capacity of the sanatorium to 170 beds. The superintendent recommends a still further increase by the building of another unit of twenty beds for women, and enlarging the infirmary, so as to make a complete capacity for 200 patients. Other improvements are recommended to cost approximately $61,000. ——The new Brown County Tuberculosis Sanatorium has been completed and was opened to receive patients December 1. The construction of the sanatorium came within the appropriation of $22,000. The site and 26 acres surrounding it cost $3,000 and the Brown County board has made an appropriation of $4,000 for interior fittings and furnishings. The institution has twenty bedrooms for patients and two wards.——Kenosha has voted for an appropriation of $20,000 for the erection of a tuberculosis sanatorium for Kenosha County.——Of the $30,000 bond issue for the construction of the Winnebago County Tuberculosis Sanatorium, all but $7,500 has been subscribed.

CANADA

Personal.—Dr. Watson Dykes, Duncan's Station, B. C., has been appointed medical officer of health of South Cowichan, Victoria, B. C.——Drs. John Taylor Fotheringham, James A. Roberts, William B. Hendry and Arthur C. Hendrick are among the Toronto physicians who will go abroad with the second Canadian contingent.——Dr. Albert G. Nicholls, Montreal, McGill University, assistant in pathology and clinical medicine, has been appointed to the chair of pathology in Dalhousie University, Halifax, N. S.

Hospital Reports.—At the seventieth annual meeting of the Montreal Maternity Hospital it was reported that during the last year 1,169 patients were treated as compared with 1,243 the previous year. During the year a nurses' home had been purchased at a cost of $50,000 through a bequest of the late Mr. James Ross. The expenditures and revenue for the year were $40,384 and $41,124, respectively, showing a deficit of $740. The superintendent, Dr. William Bauld, having departed for the war, Dr. C. E. Holbrook has been elected in his stead.

Montreal Vital Statistics for 1913.—After considerable delay the report of the medical officer of health for the year 1913, Montreal, has appeared. In spite of persistent efforts to check infant mortality, the report shows that it increased over 1912 by 1.73 per cent. During 1913 no fewer than 5,732 children died in Montreal under 5 years of age, or 51.65 per cent., of the total mortality. Montreal's infantile mortality rate is one of the highest in the world, being nearly double that of Baltimore, a city approximately of the same size. The deaths due to contagious diseases showed a large increase, as follows: measles, 136; scarlet fever, 184; diphtheria, 173; typhoid, 106; tuberculosis, 897. The deaths in 1912 from these diseases were 14, 80, 77, 94 and 894, respectively.

GENERAL

Correction.—The notice in The Journal of December 5, entitled "Experimental Biologists to Meet," stated erroneously that the name of the federation was the "Southern Experimental Biologists." The correct title of the organization is "The Federation of American Societies for Experimental Biology."

Experimental Biologists to Meet.—The Federation of American Societies for Experimental Biology composed of the American Physiological Society, the American Society of Biological Chemists, the American Society for Pharmacology and Experimental Therapeutics, and the American Society for Experimental Pathology, will hold its next annual meeting at Washington University Medical School, St. Louis, Mo., December 28 to 30.

Red Cross Seals Having Wide Sale.—The Red Cross Seal for 1914 is a reproduction of the jovial Santa Claus. It is having a wide sale. The stamps make a desirable addition to every gift package and represent a thought for those sufferers who should not be overlooked, amid the great disasters occasioned by the war.

Bequests and Donations.—The following bequests and donations have recently been announced:

Home for Destitute Crippled Children, and Mary Thompson Hospital of Chicago for Women and Children, each $100,000 by the will of Alexander A. McKay.

Rockefeller Institute, New York City, $200,000 to be used in research work leading to a cure for cancer, by the will of Henry Rutherford.

University of Pennsylvania, $10,000 for the endowment of a room in the Agnew Pavilion of the hospital connected with that institution, in memory of her husband, Dr. Molton H. Forrest, by the will of Mrs. Emma L. Forrest.

Germantown Hospital, $1,000 by the will of Jenny E. Disston.

Presbyterian Hospital, Philadelphia, $1,000; Philadelphia Society to Prevent Children from Cruelty, $2,000; Philadelphia Society for Organizing Charity, $1,000, by the will of Miss Augusta Tabor.

Nursery and Child's Hospital, New York City, $1,500 by the will of J. Howard Wright.

Eastern District Hospital and Dispensary, Brooklyn, $5,000, by the will of Frederick B. Mollenhauer.

Awarding of Nobel Prizes Postponed.—It is announced from Stockholm that the distribution of the Nobel prizes has been postponed to next fall. After that year, the date of awarding the five prizes is to be changed from December 10 to June or July 1. This will bring the prizes for both 1915 and 1916 into the latter year; they amount to about $38,000 each. As it will be so long before we hear from these prizes again, it may be interesting to recall that to date the prize in medicine has been awarded in turn to Behring, Ross, Finsen, Pawlow, Koch, Ramon y Cajal and Golgi, Laveran, Ehrlich and Metchnikoff, Kocher of Switzerland; Kossel, professor of physiology at Heidelberg; Gullstrand, professor of ophthalmology at Upsala, Sweden; Alexis Carrel and to Richet of Paris. The prize has thus gone to Germany and to France twice each, once each to England, Denmark, Russia, Switzerland, Sweden and America (Carrel), and been divided once between Spain and Italy and once between Germany and France—a truly international list.

Disbanding of Rockefeller Sanitary Commission.—The Rockefeller Sanitary Commission which has had in charge the eradication of hookworm in the southern states under the fund of $1,000,000 granted by John D. Rockefeller in 1909, will disband at the close of the present year. The forces of the commission at that time will be withdrawn from all the states in which they have been working except eight, and the work in these will be taken over by the Rockefeller Foundation, a separate organization. The foundation will close up the work in five of the eight states March 1, 1915, and the remaining three on June 30. Under the foundation there has been created an International Commission on Health which will undertake work for the promotion of health in all parts of the world in cooperation with health departments of all countries, and especially will cooperate in the constructive development of state health forces, not alone with reference to hookworm, but in connection with other health conditions.

Dr. Knopf's Prize Essay as Aid to Tuberculosis Campaign.—Dr. S. A. Knopf informs us that Dr. S. Breitenfeld's Bohemian translation of the seventh American edition of Dr. Knopf's international prize essay, "Tuberculosis as a Disease of the Masses and How to Combat It," has just appeared in book form. The translation appeared first in serial articles in the Bohemian Daily, *New Yorske Listy*. On account of there being many large Bohemian colonies throughout the United States, the appearance of the translation is welcomed by all who are interested in the tuberculosis problem, and particularly by physicians practicing in Bohemian colonies. The latest American edition of this essay is now also being translated into Spanish by Dr. Jesus E. Monjaras of Mexico City. The translation of the essay into various European and Asiatic languages since its original appearance in Germany some ten years ago, speaks well for the universal interest now taken in the antituberculosis campaign throughout the civilized world.

FOREIGN

Death of Spanish Physician Aviator.—Dr. Cortijo, who recently lost his life in an accident to his aeroplane, was a medical officer in the Spanish army and member of the aviation corps.

Malaria in Italy.—The report of the Italian Red Cross for 1912-1913 states that six units were sent into new territory and four into the Pontine marshes and one to the Campo Soriano. The number of cases in the district near Rome was only 5.1 per cent. and in the Pontine marshes 4.9 per cent., the lowest figures yet reached. Dr. P. Postempski is the medical inspector in chief for the service.

Typhoid at Barcelona.—Our Spanish exchange, the *Siglo Medico* of November 7, states that the severest epidemic of typhoid Barcelona has ever known is prevailing there now, although the mortality is not very high. One daily estimates that there have been 30,000 cases, and a communication from a local physician places the number as much above 15,000, while the authorities have over 5,000 registered cases. The hotels were crowded with refugees from the war zone, but the city is now deserted by all of them who can leave. Notwithstanding vigorous sanitary measures the epidemic shows no signs of abating, 400 cases a day being still reported.

Hookworm in Iquitos, Peru.—Dr. George B. Converse, U. S. Public Health Service, has returned to San Francisco from Iquitos, Peru, where, at the request of the Peruvian government, he has spent almost three years investigating the death-rate of about 50 per 1,000 and instituting sanitary reforms. Yellow fever and hookworm were the diseases responsible for the greatest amount of the mortality and morbidity. His work was hampered by lack of hospital facilities. Before he left, however, he had succeeded in reducing the death-rate to 21 per 1,000 and had established a well-equipped clinic.

WAR NOTES

Lack of Medical Supplies in Servia.—Servian hospitals are said to have run short of anesthetics early in November. There is also a shortage of surgical instruments in the field hospitals.

Queen Visits War Hospital.—Queen Mary of England visited the American Hospital at Paignton, England, November 29, and commended most highly the administration of the institution.

Graduating Class Volunteers as a Body.—Every member of the graduating class of the medical school connected with Dalhousie University, Halifax, N. S., has volunteered for service in the European war.

More Surgeons Needed for Russians.—In response to an appeal from Russia for surgeons, the American Red Cross has arranged to send two more surgeons to reenforce the units already on duty with the Russian forces.

Anesthetics Still Needed.—The British War Relief Association, Washington, has sent five cases of chloroform to the American ambassador in Paris, and letters from France appeal for still further contributions for anesthetics.

Scientist Taken Prisoner.—Dr. Albert Calmette, director of the Pasteur Institution at Lille, a staff officer in the French medical service, who has been missing for some time, is now said to be a prisoner of war at Munster, Westphalia.

Decorations for German Medical Officers.—The *Münchener med. Wochenschrift,* November 10, states that the iron cross has been conferred on 920 physicians to date. The iron cross of the first class was awarded during the Franco-Prussian War only to Langenbeck, Wilms and Bardeleben.

Change from Quarterly to Monthly.—On account of the rapid increase of membership of the American Red Cross and the broadening of its field of usefulness, the *American Red Cross Magazine* will hereafter be issued monthly instead of quarterly, beginning with the January number.

Medical Officers in German Army.—The surgeons with the German army rank as officers and are entitled to wear sidearms. The authorities have also recently announced that civilian medical men serving in the field are entitled to a pension if incapacitated by wounds or sickness and the family to a pension in case of death.

Dissolution of the International Public Health Office at Constantinople.—Our German exchanges state that the government of Turkey has suspended the operations of the *Internationale Sanitätsrat* and invited the members to join the medical corps of the Turkish army. The International Health Office was mainly engaged in supervising the pilgrimages to Mecca and preventing the importation of epidemic disease into Europe.

War News In Germany.—Germany seems to be in part shut off from communication with France and England. According to the *Deutsche med. Wochenschrift* of November 12, nothing has been heard from its London correspondent since the war began, and its Paris correspondent is at work in an ambulance in Germany. It reproduces entire the long Paris Letter in The Journal of September 19, and the London Letter in the issue of September 26. War makes strange arrangements necessary and it is interesting to find a German periodical printing from an American publication news of English and French activities.

Clothing Gifts for Europe.—The American National Red Cross requests that all gifts of clothing, and hospital garments and supplies for the distressed people of Europe, be forwarded freight prepaid, to the American Red Cross, Bush Terminal, Thirty-Ninth Street and Second Avenue, South Brooklyn, N. Y., and that the Bureau of Medical Service, Washington, be notified of the number of suit cases, packages, etc., with approximate contents and day on which they were forwarded. Bills of lading should be sent to the address at South Brooklyn. Second-hand clothing is not acceptable, but new clothing, hospital garments and hospital supplies, such as sheets, pillow cases, towels, etc., are always useful.

Behring and Metchnikoff.—Metchnikoff will be 70 years old next year, and a *Festschrift* for him has been in preparation at Paris for this anniversary. Behring had intended to contribute an article to it, but the breaking out of the war prevented his article reaching the publishers on time, that is, before September 1. He now publicly announces (November 12) that he hopes "before the anniversary in question, next May, to manifest in some other way my respect and unwavering friendly sentiments for Metchnikoff on the occasion of his seventieth birthday." Metchnikoff is a Russian, and has devoted the last twenty-six years of his life to research at the Pasteur Institute at Paris. His discovery of the phagocyte was made before he went to Paris. Like Pasteur, he never completed the medical course.

LONDON LETTER

London, Nov. 15, 1914.

The Kind of Nurses Wanted at the Front

Sir John French has made it known that no one is wanted near the fighting line except fighting men and fully trained men and women pledged to devote themselves to the duty of healing and nursing the wounded for the duration of the war. The amateur nurse is of no use there. He very wisely adds that women who want to enlist in the great army of nurses that will be needed before the war is finished should be learning their profession at home till their services at the front are asked for. "The standard of British hospitals here," he is reported by the special correspondent of the *Daily Call* as saying, "is so high and admittedly so far above that of all the rest, that women chosen to serve with British comrades on this side of the channel should lack no qualification she can with diligent effort acquire. The thoughtful skill of a few seconds may save a life. There is never a moment to be lost in these crowded nights when the lives of a hundred poor victims hang by a thread and the watchful zeal of a patient, resourceful woman alone can avail." Sir John French concludes with the warning that it is time that every woman in Britain who has intelligence and the requisite earnestness should begin, if she has not yet done so, to learn the elements of nursing, if only "first aid," for the war must be long and there will be many gaps to fill.

Aid for Our Belgian Colleagues

Physicians have suffered like the rest of the Belgians, and those who have survived have been completely ruined. According to Professor Jacobs of the University of Brussels, who is now in this country, some have had to work as navvies in order to obtain a few pence. Others have not seen bed for a fortnight and have lived exclusively on potatoes. Some have had a bunch of straw and lie on the ground, and they and their children are dressed in rags. A professor of a university was bereft of everything and in dire want of a bed. Another was seen wandering haggard over the countryside searching in vain for his family. Some have been taken as hostages; others have been shot and their widows and orphans left destitute. Of the 4,800 physicians of Belgium, 1,000 are absolutely destitute and most of the remainder are suffering cruelly. In my last letter I announced the formation of a committee of the leaders of the medical profession for the aid of our Belgian colleagues. It has been decided to dispatch to Belgium packets of medical and pharmaceutical material which will be received by the American ambassador.

The committee appeals to the medical and pharmaceutical professions in this country for funds to enable their Belgian colleagues to begin work as soon as military circumstances permit. It also asks for surgical instruments, not necessarily of the latest pattern. The following are especially required: scissors, dressing and artery forceps, syringes and midwifery forceps. Further, money is wanted to help the refugee physicians and pharmacists in this country who have nothing left in the world. It is proposed to associate our work with corresponding efforts in the United States and other countries. Subscriptions may be sent to Dr. H. A. Des Voeux, 14 Buckingham Gate, London, S. W. Many physicians in this country are offering hospitality to their colleagues, and the British Medical Association has given the use of the office as a clearing house for collecting their names through the *British Medical Journal.*

Sanatogen and the War

The government has prohibited all trading with the enemy and the carrying on of any business in this country which is the property of enemies resident in Germany. This has proved a blow to one of the most successful of the fraudulent nostrums of the day, Sanatogen. As it is a German preparation it can no longer be sold. An attempt has been made to evade this prohibition. An application was made to the Home Secretary for permission to convert the business into an English limited company. He refused to sanction such an arrangement and directed that steps should be taken to prevent any profits being transmitted to the proprietor during the war. A British company has now been formed for the sale of a product termed "Sanaphos," which is wholly British owned and British made. It is being widely advertised in the daily press as displacing Sanatogen. The public is informed that "Britishers and their allies are now independent of Sanatogen." "All patriotic men and women," it is said, "will welcome an opportunity of obtaining a British product instead of benefiting an alien enemy by taking a German-owned preparation." "Sanaphos is an all-British preparation, and the fact that the company producing it is under the chairmanship of Sir William Taylor, K.C.B., the late Surgeon-General of H. M. forces, and that the article is produced under the direct supervision of a distinguished analyst, are sufficient guarantees of its efficacy and superiority. Sanaphos has its basis in English milk, and, unlike Sanatogen and its imitations it retains all the active enzymes of milk, and is not a mere dried casein preparation. The extravagant prices at which Sanatogen was sold not only enriched its German owner, but prevented its use among those who could not afford such prices. Those who see, in themselves or in members of their families, the results of the new cares, new duties and general strain of war-time, involving nervous or mental depression or physical exhaustion should take steps at once to procure a supply of Sanaphos to be used as an addition to ordinary diet." Evidently the same old game. The Germans have no monopoly in fraudulent claims.

PARIS LETTER

Paris, Nov. 12, 1914.

The Waterproofing of Military Clothing

Ever since the war of 1870 chemists have proposed a method of waterproofing military clothing by the use of watery solutions of aluminum acetate. The objection has been raised that the results are not sufficiently permanent, for the waterproofing disappears under repeated friction, as by the straps of the haversack, etc. Moreover, if the metal braid and buttons of the uniform are not detached before the treatment, they will be covered with verdigris; besides the procedure spoils the looks of the clothing, which requires a long time to dry. M. G. A. LeRoy has reported to the Académie des sciences a process of waterproofing which seems free from these objections. It is based on a very light impregnation of the fibers of the cloth with anhydrous wool fat (adeps lanae anhydrosus) dissolved and diluted in a neutral and volatile anhydrous vehicle. Wool fat is first liquefied by means of a little chloroform, carbon bisulphid or carbon tetrachlorid and then diluted and dissolved in automobile gasoline or the benzin employed by cleaners. The proportions employed are from 5 to 10 parts of wool fat and from 90 to 95 of solvent. The whole uniform, with its braid and buttons, is immersed in the liquid for a few minutes, then wrung out and placed in the air to dry. The fat, fixed in the fibers and pores of the cloth on the evaporation of the solvent, cannot be removed by friction like the particles of the aluminum acetate. The waterproofing is perfect and the appearance of the cloth, its porosity, its color and its elasticity are not modified. An important hygienic advantage is that the cloth remains permeable to air and perspiration.

Treatment of Gangrenous Military Wounds

Apropos of the paper by Professor Quénu on the treatment of gangrenous military wounds by opening up and sterilizing with hot air (The Journal, Nov. 28, 1914, p. 1967), Dr. Paul Thiéry, surgeon of the hospitals of Paris and agrégé of the Faculté de médecine, recommends the use, in serious cases of septicemic military wounds, of hypodermic injections of from 0.01 to 0.02 gm. of pilocarpin repeated daily. The profuse perspiration caused by the pilocarpin, together with the ingestion of abundant liquid, sometimes even with intravenous injection of a physiologic solution of sodium chlorid, produces a veritable lavage of the blood, which is less depressing than bleeding and which relieves the blood of toxins while preserving the blood corpuscles. This procedure is capable of giving good results even in desperate cases. Thiéry insists, moreover, on the necessity of return to the most energetic measures of the old antiseptic surgery (concentrated solutions of zinc chlorid).

BERLIN LETTER

Berlin, Nov. 3, 1914.

The War

The effort of the head of the army medical service to care for the enormous number of wounded as quickly and as well as possible has caused the enrolment of a constantly increasing number of physicians in the army. Physicians who belong to the military reserves have already been employed. Physicians who, for physical reasons, have never undergone military service have also been enlisted, in some cases at the seat of war and to a greater extent in the hospitals in their home towns. In this way also some relief has come to many physicians whose practice has been diminished through the departure for the seat of war of a large number of men, among whom are workmen who are exposed to industrial diseases and accidents. This circumstance alone does not explain the fact that many gynecologists and pediatrists complain of a striking lack of professional work; other causes must be found. In the first place, the war may be considered as occupying our minds so completely that in many cases it has crowded out complaints which affect the welfare of men in normal times and cause them to seek medical aid. This applies, particularly, to the large mass of nervous complaints of women but also to the milder organic diseases, which lose importance in comparison with the great tension and the not inconsiderable care for the welfare of the fatherland and for relatives in the field. In addition, there is doubtless an economic factor, the necessity to limit expenses as much as possible in view of the lessened income. Even in times of peace, physicians are well acquainted with the fact that avoidance of a physician's fee is regarded as preferable to the restriction of food or similar demands. Finally, there has been no epidemic of importance. While in autumn, we are often enough sufferers from measles, scarlet fever, typhoid, etc., these diseases so far have not appeared in any notably greater degree than in the summer months.

Epidemic Diseases

From the point of view of the public health and the psychic and economic life of our city, the absence of epidemics is most gratifying. Their importation, so liable to occur in war, has not taken place. In this respect we are better off than our ally, Austria-Hungary. There an invasion of cholera has occurred, both from the Servian and the Russian troops; in Hungary and Galicia several hundred cases have been observed. In view of the nearness of the two allied countries, of course, the danger for us of seeing the unbidden guest on our boundaries is not slight. But we may hope that the excellent organization of our sanitary service will be able even under the present serious condition to protect our boundaries, and even if a transmission of the disease should occur, to restrict it to sporadic cases. Although the war has already lasted three months, and the conditions of the weather in the last month have not been favorable, other war pestilences which, in former times, have demanded an enormous number of victims, so far have not occurred to an extent worth mentioning. Already in the East, where we have come into such unpleasant contact with the permanent epidemic foci of Russia, the number of typhoid cases observed is so small that it has scarcely exceeded the first hundred, and in the same manner dysentery is confined to very moderate limits. It is noticeable, moreover, that affections of the intestine accompanied by bloody diarrhea have been observed in which the germ of dysentery could not be demonstrated. In the West, the prevalence of typhoid seems to be somewhat more marked, but there also are apparently only a few hundred cases, which is also true of dysentery. Whether the typhoid preventive vaccination, which has been carried out to a great extent in our various armies, is of any essential importance in causing this restriction of typhoid, cannot at present be decisively determined. In this respect, a more definite idea will be obtained by comparison of the typhoid cases which occur without prophylactic inoculation with those which occur in spite of it. Small-pox has not hitherto been observed. This fact is not remarkable, for our army, even in time of peace, has been free from small-pox and now all troops have been vaccinated previous to going to the front. Moreover, among the French, vaccination has been better carried out than in the war of 1870-1871; at that time, as is well known, both the civil population and also the army was attacked with small-pox and many deaths occurred in the army. Also among the French prisoners of war who were confined in Germany, small-pox prevailed at that time to a considerable degree, and the disease was communicated by them to the German civil population.

The Number of Wounded

It is not generally known to what extent the weather has had an influence on the origin of colds, especially on pneumonia. So far as I know, large numbers of these cases have not been observed in the hospitals. An estimate of the number of wounded can be made from Berlin alone, where, in the hospitals and in the private clinics, casinos, restaurants and other buildings devoted to hospital purposes, more than 12,000 beds for the wounded have been provided. The arrangements are in general, as I have been able, personally, to convince myself, of the model kind. Even the improvised hospitals have quickly met the highest demands for comfort and for the care of the sick. Roentgen apparatus is generally in use with good operating rooms, individual rooms, etc. The course of wounds and diseases remains in general very favorable, and even severe wounds heal in part without disturbance of function, and the convalescents are anxious to return to the front as soon as possible. In this way, place is found for fresh cases. As I learn, 5,073 men have been already dismissed from one of the Berlin convalescent stations since its institution, August 30. Of these, 1,899 (37.5 per cent.) went immediately to the front, 2,854 (56 per cent.) were transferred to the reserve department of the army and only 322 (6.5 per cent.) were incapable of service. As the reserve department of the army naturally very soon dismisses to the front the majority of those sent to it, and as the figures quoted refer only to one of the many stations for those slightly wounded, an approximate estimate may be made of the enormous number of wounded and sick soldiers who have recovered and who are now fighting again in the ranks of the army. The same is true of the hospitals of other countries, and thus it is possible for the stream of transports for the wounded to pass without disturbance and without stopping, from the field of battle to their homes where, it is easy to understand, the patients are better taken care of than in the field hospitals. It is also evident that in this way the origin and spread of diseases is limited. Recovery also is favored by the better provisions for nursing in the home towns. Several head surgeons of the hospitals have described to me how the wounded who were brought here directly from the field of battle and who came here exhausted, not only as the result of their wounds but also from the severe strain of the battle, took a new appearance of life after twenty-four hours of rest in a good bed and careful feeding and were scarcely recognizable. Everything that human care and gratitude is capable of is done for the restoration of the wounded. It is touching and inspiring to see how rich and poor, high and low, compete to show their love for those who have given their blood for the fatherland. In the hospitals, concerts are given by noted artists, declamations, humorous performances and, of course, divine service—everything that will have a favorable psychic influence on the sick. If they are able to go they are taken to the theater, to the zoological gardens and to other places of recreation. One might almost get the impression that the wounded were being coddled and that they would feel so much the more severely the contrast between the agreeable home land and the rough war to which they return. However, this objection is of little consequence in comparison with the strengthening of the spirit which must be accomplished by the activity in the general undertaking. That this activity for our soldiers is expressed also by the amount expended for presents is natural.

Marriages

Kenna Jackson, M.D., Richwood, W. Va., to Miss Neva Bernice McMillion of Love Ridge, W. Va., at Washington, D. C., November 4.

Mary Catherine Couch, M.D., Chicago, and Mr. Tomas T. Mora of Fajardo, P. R., at Rio Piedras, P. R., November 19.

Lieut. George Corwin Beach, M. R. C., U. S. A., to Miss Jessie Spencer of National Soldiers Home, Va., November 16.

Rafe Chester Chaffin, M.D., Los Angeles, Cal., to Miss Marion Quinn of Ottawa, Ont., at Los Angeles, November 17.

Walter Chafey Moodie, M.D., Newcastle, Neb., to Mrs. Mabel Odom of Walthill, Neb., at Macy, Neb., November 7.

Colonel James Edson Miller, M.D., Brooklyn, N. Y., to Miss Lucy Regina Berry of New York City, November 14.

Harry Leslie Franklin Locke, M.D., to Miss Katherine Elizabeth Entress, both of Hartford, Conn., November 11.

Thomas Francis Henry, M.D., Salem, Mass., to Miss Jennie Frances Moore of Woburn, Mass., November 11.

Charles Patton Blair, M.D., Monmouth, Ill., to Miss Lena Blanche Wilson of Des Moines, Ia., October 10.

Ernest Henry Gruening, M.D., Boston, to Miss Dorothy Elizabeth Smith of Norwood, Mass., November 19.

William George Patton, M.D., to Miss Emma Elizabeth Giessing, both of Farmington, Mo., November 17.

Charles Hartwell Cocke, M.D., Asheville, N. C., to Miss Amy Grace Plank of Philadelphia, November 12.

Robert Vincent Williams, M.D., to Miss Matilda Reinhart, both of College Point, N. Y., November 19.

Lieut. Chester R. Haig, M. C., U. S. A., to Miss Hilda Morse of Merchantsville, N. J., November 11.

Charles P. Renner, M.D., to Miss Gertrude Harst, both of Belleville, Ill., at St. Louis, November 17.

Herbert C. Blake, M.D., Baltimore, to Miss Helen Niely of Paradise, Catonsville, Md., November 14.

Claude Carlisle Caylor, M.D., to Miss Alice Donnelly, both of Washington, D. C., November 18.

Walter Wilson Griffin, M.D., Manhattan, to Miss Mattie Fox Vaughan of Brooklyn, November 16.

Henry Gifford Bull, M.D., Ithaca, N. Y., to Helen Dudley, M.D., of Brooklyn, November 21.

Clyde Earl Wilson, M.D., to Miss Caroline Grace Geyman, both of Blue Earth, Minn., November 12.

Robert Emmett Flannery, M.D., to Miss Mary Kearns Black, both of Chicago, November 11.

Deaths

Charles Wood McMurtry, M.D. Harvard Medical School, 1897; a Fellow of the American Medical Association; a member of the New York Academy of Medicine and many dermatological societies; instructor in dermatology in the College of Physicians and Surgeons in the City of New York; assistant dermatologist to the Vanderbilt Clinic and St. Luke's Hospital, New York City; for eleven years connected with the Dermatological Clinic at Breslau, Germany; died at his home in New York City, November 26, after an operation for appendicitis, aged 42.

Henry X. Bonebrake, M.D. Bellevue Hospital Medical College, 1865; a Fellow of the American Medical Association and formerly president of the Medical Society of Franklin County; for many years in charge of the State Tuberculosis Dispensary, Chambersburg, Pa.; visiting physician to the Chambersburg Hospital and Franklin County Almshouse, and county inspector for the State Department of Health; died November 22, at the State Sanatorium, Markleton, Pa., from chronic nephritis and arteriosclerosis, aged 71.

Sherbourne William Dougherty, M.D. University of Pennsylvania, Philadelphia, 1894; a Fellow of the American Medical Association; instructor in physical diagnosis in his Alma Mater and chief of the medical clinic at the German Hospital, Philadelphia; later assistant physician at the Methodist Hospital and physician to the Society for the Prevention of Cruelty to Children; died at the home of his sister in Philadelphia, November 23, aged 45.

William Wightman Mangum, M.D. Atlanta (Ga.) Medical College, 1893; a member of the Medical Association of Georgia; and formerly president of the Butler County, Ala., and Floyd County, Ga., medical societies; local surgeon at Rome, Ga., for the Nashville, Chattanooga and St. Louis Railway; medical director of the Cherokee Life Insurance Company; died in the Grady Hospital, Atlanta, Ga., November 18, aged 47.

Clark M. Galloway, M.D. Medical College of Ohio, Cincinnati, 1877; of Xenia, Ohio; a member of the Ohio State Medical Association; chief of staff of the Old Sailors' and Soldiers' Home, Xenia; a veteran of the Civil War, and medical director for the Department of Ohio of the Grand Army of the Republic in 1890-91; died at the home of his brother in Dayton, November 20, aged 70.

James W. Gaines, M.D. Medical College of Ohio, Cincinnati, 1886; a Fellow of the American Medical Association; professor of otology in the Medical Department of the University of Kansas; laryngologist and rhinologist to St. Joseph's Hospital, Kansas City, Mo., and consultant to St. Margaret's Hospital, Kansas City, Kan.; died at his home in Kansas City, Mo., November 22, aged 51.

William Henry Baker, M.D. Harvard Medical School, 1872; founder of the Gynecological School for Advanced Students at Harvard; founder of the Free Hospital for Women, Brookline, Mass., and surgeon emeritus of that institution; a member of the Massachusetts Medical Society; died at his home in Waltham, November 26, from heart disease, aged 69. (Bu)

Evan Cameron, M.D. Medical School of Maine, Brunswick, 1869; Bellevue Hospital Medical College, 1872; of Elyria, Ohio; a Fellow of the American Medical Association; founder and formerly president and treasurer of the Lorain County Medical Society and coroner of Lorain County; died in the Memorial Hospital, Elyria, October 8, from pneumonia, aged 65.

James Leeworthy Camp, M.D. Rush Medical College, 1879; a member of the Minnesota State Medical Association and of the Advisory Commission of the Minnesota State Sanatorium for Tuberculosis, Walker; for thirty years a resident of Brainerd, Minn.; was found dead in his bed in Brainerd, November 22, from heart disease, aged 59.

Harold Willis Hartwell, M.D. University of Michigan, Ann Arbor, 1883; New York Homeopathic Medical College, New York City, 1884; died at his home in St. Louis, November 17, from heart disease, aged 56.

Philip G. Creveling, M.D. Pennsylvania Medical College, Gettysburg, 1858; for more than half a century a practitioner of New Jersey; died at the home of his daughter in Broadway, N. J., November 5, aged 80.

Andrew S. Low (license, years of practice, Pennsylvania, 1888); for forty-three years a practitioner of Pennsylvania and a veteran of the Civil War; died at his home in Philadelphia, November 9, aged 77.

J. M. Pounds, a pioneer practitioner of Hays County, Texas, and a veteran of the Mexican and Civil wars; died at his home near Dripping Springs, Texas, October 20, from arteriosclerosis, aged 87.

Andrew J. Jackson, M.D. University of Buffalo, N. Y., 1873; a Fellow of the American Medical Association; died at his home in Matawan, N. J., November 17, from pneumonia, aged 72.

Thomas W. Botkin (license, Indiana, 1897) for forty-five years a practitioner of Farmland, Ind.; died at the home of his son in that place, November 19, from cerebral hemorrhage, aged 70.

James C. McIntosh, M.D. University of Pennsylvania, Philadelphia, 1846; one of the oldest practitioners of Knoxville, Tenn.; died at the home of his son in that city, November 8, aged 89.

J. H. Sensabaugh (license, Tennessee, 1889); a Confederate veteran and formerly a clergyman of the Methodist Episcopal Church; died at his home in Knoxville, November 8, aged 69.

Erving Asa Libbey, M.D. Medical School of Maine, Portland, 1897; a member of the Providence (R. I.) Medical Society; died at his home in Cranston, R. I., October 7, aged 39.

O. M. Humston, M.D. Louisville (Ky.) Medical College, 1874; a member of the Kentucky State Medical Association; died at his home in Campbellsburg, Ky., November 14, aged 63.

Samuel P. Brundige, M.D. Medical College of Ohio, Cincinnati, 1872; a veteran of the Civil War; died at his home in Marion, Ind., November 10, from cerebral hemorrhage, aged 77.

Isaac N. Smith, M.D. Medical College of Ohio, Cincinnati, 1874; of Greenfield, Ohio; died at the Good Samaritan Hospital, Cincinnati, November 6, from carcinoma, aged 67.

Charles S. Morris (license, Colorado, ten years practice, 1900); formerly of Snyder and Julesburg, Colo.; died in his home in Brush, November 11, from pneumonia, aged 70.

Charles Eugene Harvey, M.D. Bellevue Hospital Medical College, 1889; Medical School of Maine, Brunswick, 1889; died at his home in Bristol, Vt., September 26, aged 51.

Alexander McCully, M.D. Washington University, St. Louis, 1902; formerly of Wellsville, Mo.; was found dead at his home in Nooksack, Wash., October 27, aged 36.

Carl Edward Maaser, M.D. University of Iowa, Iowa City, 1914; of Waverly, Ia.; died in the General Hospital, Montreal, Que., October 18, from septicemia, aged 26.

Thomas W. Hightower, M.D. Southern College of Medicine and Surgery, Atlanta, Ga., 1914; died at his home in Atlanta, August 18, from pneumonia, aged 32.

Daniel Kingsbury, M.D. Metropolitan Medical College, New York City, 1852; died at his home in Glastonbury, Conn., November 16, from senile debility, aged 86.

Pierce Tyrrell, M.D. Eclectic Medical Institute, Cincinnati, 1866; one of the oldest practitioners of Illinois; died at his home in Elgin, November 19, aged 85.

Robert Emmett Foley, M.D. Bennett Medical College, Chicago, 1880; died at his home in Stockton, Cal., October 28, from disease of the heart and liver.

Allen J. Alston, M.D. Howard University, Washington, D. C., 1890; a colored practitioner of Boynton, Okla.; died at his home in that place in August.

Joseph R. Blackford, M.D. University of Tennessee, Nashville, 1895; died at his home in Linton, Ky., November 4, from cerebral hemorrhage, aged 42.

Charles M. Eaton, M.D. Medical College of Indiana, Indianapolis, 1878; died at his home in Robinson, Ill., September 10, from nephritis, aged 68.

Joseph Lowman Campbell, M.D. Western Pennsylvania Medical College, Pittsburgh, 1889; died at his home in Chicora, Pa., November 9, aged 53.

Thomas Rud Wingo, M.D. Jefferson Medical College, 1860; a Confederate veteran; died at his home near Trezevant, Tenn., November 5, aged 88.

Alonzo William Morelen, M.D. Medical School of Maine, Brunswick, 1902; of Cherryfield, Maine; died in Bangor, Maine, October 11, aged 43.

B. Blake Minor, Jr., M.D. McDowell Medical College, St. Louis, 1866; died at his home in Beaumont, Texas, November 1, from cerebral hemorrhage.

Thomas M. Howard, M.D. Louisville (Ky.) Medical College, 1878; died at his home in Boonville, Ind., November 17, from asthma, aged 68.

Milton Covert (license, Ohio, 1896) for twenty-six years a practitioner of Youngstown, Ohio; died at his home, November 15, aged 61.

James William Bryant, M.D. University of Louisville, Ky., 1873; died at his home in Lyerly, Ga., November 10, from tuberculosis, aged 54.

Amos H. Farrish, M.D. Atlanta (Ga.) College of Physicians and Surgeons, 1901; died at his home in Perry, Ark., November 3, aged 45.

Thomas N. Moxon, M.D. Central Medical College, St. Joseph, Mo., 1896; died at his home in Salida, Colo., November 8, aged 50.

Elmer Dallus Snyder, M.D. Louisville (Ky.) Medical College, 1892; died at his home in Radnor, Ind., September 5, aged 49.

Joseph Arrington Blick, M.D. Jefferson Medical College, 1859; died at his home in Petersburg, Va., November 3, aged 78.

John S. Wilson (license, Missouri, 1883); died at his home in Deepwater, Mo., November 8, aged 66.

Jason Roberts, M.D. Medical College of Ohio, Cincinnati, 1865; died at his home in Osceola, Ia., November 5, aged 77.

James Leslie, L.R.C.S. Edin., 1858; died at his home in Hamilton, Ont., October 18, aged 82.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

THE EDITORIAL DR. JEKYLL AND THE ADVERTISING MR. HYDE

While The Journal has devoted more space to criticizing the lack of consistency between the editorial and advertising departments as it appears in medical journals, its existence in the lay press has not been overlooked. Franklin P. Adams who conducts a "colyum"—"The Conning Tower"—in the New York *Tribune* thus sums up the case as it applies to newspapers:

The Double Standard

"Important is the nation's health
Naught is the question of the shekel.
Ill fares the land that worships wealth!"
Says Editorial Dr. Jekyll.
"Do you get up with pains or cricks?
Do you have stitches in the side?
BUY DR. KILLMAN'S VI-TE-LIX!"
Says Advertising Mr. Hyde.

"Down with the greedy grafters who
The land's escutcheon do bespeckle!
Three cheers for the Red, White and Blue!"
Says *Editorial* Dr. Jekyll.
"Does zero weather give you chills?
Insomnia leave you weary-eyed?
BUY PHAKEM'S PHONY PURPLE PILLS!"
Says Advertising Mr. Hyde.

"Better than gold an honest name."
"Be true, and let the envious heckle."
"Be fair, whoever wins the game,"
Says Editorial Dr. Jekyll.
"Lost energy? Ambition? Calm?
GET DR. FIERCE'S GILDED GUIDE
REMEMBER BIDDY BUNKEM'S BALM!"
Says Advertising Mr. Hyde.

ARTICLES REFUSED RECOGNITION

Reports of the Council on Pharmacy and Chemistry

[Below appear abstracts of the Council's action on articles refused recognition which were not deemed of sufficient importance to require a lengthy report. Articles with the titles starred will be printed in full in the Reports of the Council on Pharmacy and Chemistry for 1914. A reprint of any of these unabridged reports will be sent on receipt of a two cent stamp. Previous instalments of abstracts appeared in The Journal, November 14 and November 21.]

Alborum

The Whitehouse Chemical Company, Inc., Lynchburg, Va., gives the ingredients of Alborum (without specifying the proportions), as boric acid, alum, phenol and oil of peppermint, and its properties as antiseptic, germicide, deodorant, astringent, hemostatic and prophylactic. The manufacturers recommend it:

> ". . . In the treatment of Leucorrhoea, Pruritus, Vaginal Catarrh, Gonorrhoea, Inflammation of the Genital Organs, and the various Diseases of the Vagina and Uterus . . . In burns, irritable painful lacerations, and in infected wounds, Alborum is often very serviceable."

Such recommendations for its use can only result in injury to the public health. The preparation lacks originality and is unscientific; its exploitation for the purposes suggested in the advertising matter submitted is contrary alike to the best interests of the public and to scientific medicine. The Council, therefore, held Alborum to be ineligible for inclusion with either New and Nonofficial Remedies or the appendix.

The Council's action was transmitted to the Whitehouse Chemical Co. for comment. Instead of objecting to the report, the company asked the Council to "cancel" the application for the examination of the product. Believing that the medical profession is entitled to the facts in the case the Council directed publication of this report.

Betul-ol *

Betul-ol (E. Fougera and Co., New York) is a methyl salicylate preparation advertised to physicians (and indirectly to the public) as an external analgesic and antirheumatic. The statements regarding its composition are vague, misleading and, as shown by examination in the Chemical Laboratory of the American Medical Association, untrue. The therapeutic claims are based on discarded theories. Although the alleged superiority of natural over synthetic salicylates has been disproved, physicians are urged to use Betul-ol because it contains, or is alleged to contain, a natural salicylate. Another discarded theory is pressed into service in the claim that the chloral in the mixture will be absorbed and converted into chloroform in the blood. The recommendations for the use of Betul-ol in rheumatism are likely to lead the public to the self-treatment of rheumatism. In view of the serious complications and sequelæ of rheumatic fever this recommendation is utterly unjustifiable and a danger to public health—even if the external application of this mixture in uncertain doses were as effective as a proper internal use of salicylates—a theory contrary to experience and unsupported by adequate evidence.

Cystogen, Cystogen Aperient and Cystogen-Lithia*

Cystogen is the therapeutically suggestive name applied to hexamethylenamin by the Cystogen Chemical Company. While investigation has shown that hexamethylenamin yields formaldehyd only in the presence of an acid and consequently can produce an antiseptic effect only in the gastric juice and in the urine, it is claimed that Cystogen is an "intestinal antiseptic" and that it "bears its disinfectant and antitoxic qualities into well-nigh every important bodily cavity."

As the sale of a simple drug even with the aid of the most extravagant claims probably did not offer sufficient opportunity for an extensive proprietary propaganda, the Cystogen Company has put out two other preparations, Cystogen Aperient and Cystogen-Lithia, and finds it an easy matter by means of extravagant claims, unwarranted assertions and pseudo-scientific arguments to recommend the use of one or another, or often all three, in a well-nigh endless number of diseases.

As the continued patronage of the medical profession cannot be relied on for proprietaries of this sort, the Cystogen Chemical Company takes good care that every Cystogen prescription is likely to spread the Cystogen gospel among the people. The Council has directed publication of its report on the Cystogen products to call attention to the way in which a simple drug of established value may be made the basis of an extensive proprietary propaganda. A conservative discussion of the action of hexamethylenamin appears in the Council's publication "Useful Drugs."

Cysto-Sedative

Cysto-Sedative is sold by Strong, Cobb and Company, Cleveland, Ohio, with the claim:

> "Each fluid ounce represents:
> Thuja Occidentalis, 3½ grains.
> Pichi, 18 grs.
> Saw Palmetto berries, 36 grs.
> Triticum Repens, 36 grs.
> Hyoscyamus 8 grs.
> All inert extractive matter being eliminated."

The therapeutically active constituents of arbor vitæ, pichi, saw palmetto and couch grass have never been isolated—indeed, it has not been proved that all of these drugs contain any therapeutically active constituents. Yet the absurd claims are made that all inert matter has been eliminated and each lot of drug used in the preparation of Cysto-Sedative is "tested in reference to its medicinal activity." Equally preposterous is the claim:

> "In formulating Cysto-Sedative each drug entering into its composition was subjected to careful study clinically to determine the exact proportion required when combined to increase their efficiency as a whole. Cysto-Sedative is scientifically prepared, the proportion of each individual drug being *so finely adjusted* as to increase their therapeutic action in the conditions for which they are intended, forming a preparation always reliable and of the very highest medicinal activity."

Some other extravagant claims made for this complex unscientific mixture are:

> "It gives relief in almost every form of cystitis and prostatitis . . ."
>
> "The best results are obtained in the worst chronic cases of cystitis and prostatitis . . ."
>
> "In Cystitis, Urethritis, Prostatitis, Inflammation of the Vesicle Neck, complicated with Gonorrhoea, Enuresis, Painful Micturition, the action of Cysto-Sedative is prompt."

The Council voted that Cysto-Sedative be refused recognition.

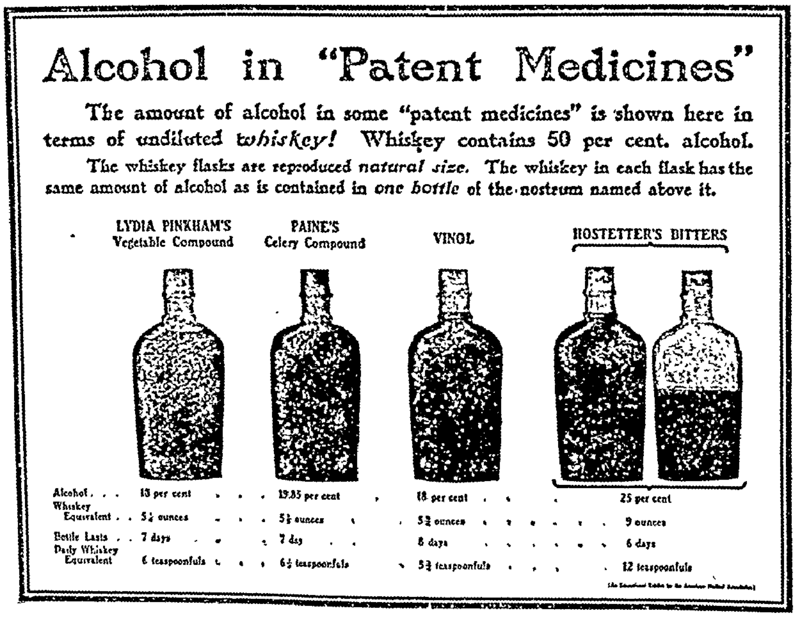
Ergoapiol*

Ergoapiol (Martin H. Smith Co., New York) is a mixture put up in capsules each of which is said to contain

Apiol (Special M. H. S.)	5	grains
Ergotin	1	grains
Oil Savin	½	grain
Aloin	⅛	grain

Examination discloses the fact that, contrary to the claim made, each capsule, instead of containing 5 grains of Apiol, really contains some liquid preparation of the type of oleoresin of parsley seed. Ergoapiol is recommended (on the label) for such diseases as "Amenorrhea, Dysmenorrhea and other Menstrual Disorders," while a circular enclosed in the package contains many suggestions that may be counted on to lead to its indiscriminate and uncritical use.

Ergoapiol is an unscientific, shot-gun mixture of drugs having widely different therapeutic effects. Where the action of parsley is desired, the effects of ergot would ordinarily, be contra-indicated; furthermore, neither aloin or savin would be called for in conditions that demanded the effects of apiol. It would be impossible to predict the action of a mixture of this kind in the varying conditions for which its use is advised by the manufacturers. To combine four drugs of dissimilar action in fixed proportions for the routine treatment of conditions which have little in common except that they involve the female generative organs, is unscientific and absurd. The Council refused admission to Ergoapiol.



Alcohol in "Patent Medicines"

The amount of alcohol in some "patent medicines" is shown here in terms of undiluted *whiskey!* Whiskey contains 50 per cent. alcohol.

The whiskey flasks are reproduced *natural size.* The whiskey in each flask has the same amount of alcohol as is contained in *one bottle* of the nostrum named above it.

	LYDIA PINKHAM'S Vegetable Compound	PAINE'S Celery Compound	VINOL	HOSTETTER'S BITTERS
Alcohol	13 per cent	19.85 per cent	18 per cent	25 per cent
Whiskey Equivalent	5¼ ounces	5½ ounces	5¾ ounces	9 ounces
Bottle Lasts	7 days	7 days	8 days	6 days
Daily Whiskey Equivalent	6 teaspoonfuls	6½ teaspoonfuls	5¾ teaspoonfuls	12 teaspoonfuls

Miniature reproduction of an educational poster prepared by the Propaganda for Reform Department. Twenty-eight different posters already prepared, illustrate various phases of the evils of nostrums and quackery. In the original the placards measure 22 by 28 inches. A catalog of the complete set will be sent on request.

Apergols*

Apergols, put out by H. K. Wampole Co., Inc., is alleged to be a "Uterine Stimulant." Apergols is apparently an inversion of the name Ergoapiol and the preparation appears to have essentially the same formula, namely:

Apiol	5	min.
Oil Savine	½	min.
Ergotin	1	gr.
Aloin	⅛	gr.
Aromatics		q. s.

As in Ergoapiol, the constituent referred to in the formula as "Apiol" appears to be oleoresin of parsley-seed instead of the definite substance apiol described in New and Nonofficial Remedies. In general the claims made for Apergols are the same as those made for Ergoapiol. The Council refused admission to Apergols because they are advertised indirectly to the public, because of unwarranted therapeutic claims, because of the non-descriptive name and because the product is unscientific.

Gastrogen Tablets

The Bristol-Myers Co., Brooklyn, N. Y., sells Gastrogen Tablets which are described as "A Neutralizing Digestive" to be "used in connection with Sal Hepatica." Sal Hepatica, it will be remembered, is another product of the Bristol-Myers Company and has been the subject of previous unfavorable comment. The label on a recently purchased package of Gastrogen Tablets contains the following:

> "For gastric distress, weak stomach and dyspepsia, one to two tablets after eating; repeat in half an hour if needed.
>
> "Also indicated in nausea, flatulence, sour stomach and heartburn."

While these recommendations sound as if they were addressed to the public, Gastrogen Tablets are advertised in medical publications and hence come within the scope of the Council. Gastrogen Tablets are said to be composed of pepsin, calcium carbonate, calcium phosphate and "aromatics." As each tablet, according to the label, contains 7 grains of calcium carbonate (chalk), the recommended dosage would in most cases be sufficient to neutralize the gastric fluids in the stomach and would thus tend to prevent the pepsin from exerting its digestive effects. The means adopted to relieve one symptom of dyspepsia, in other words, defeats the action of the means for relieving the indigestion. The fact is that patients who need an antacid do not need pepsin, while those who need pepsin will be harmed by the administration of an antacid. Gastrologists hold that, except in rare cases, the evidence tends to show that wherever there is a sufficiency of hydrochloric acid there is a sufficiency of pepsin. When pepsin is lacking it should be administered along with hydrochloric acid to make it effective. The Council voted that Gastrogen Tablets be refused recognition.

Iodalia *

Iodalia is sold by Geo. J. Wallau, Inc., with the claim that because of the peculiar combination in which it contains iodin it is a valuable and efficient substitute for iodids. The preparation was examined in the Chemical Laboratory of the American Medical Association, which reported to the Council that, contrary to claim, iodin in the form present in Iodalia, would when administered, act like an ordinary iodid. Further the proportion of iodin present was so small that to administer the equivalent of 20 grains of potassium iodid it would be necessary to give the contents of a one-dollar bottle of Iodalia. In view of this report it is evident that the claim that Iodalia is "always well tolerated" and that it cannot produce "symptoms of iodism" is true only because of the small percentage of iodin it contains. The claims made in the advertising matter, that Iodalia is an efficient iodin medication in the treatment of syphilis, that it is a suitable substitute for cod-liver oil and that it may be used in anemia, dysmenorrhea, dyspepsia, malaria and diseases of the heart, are entirely unwarranted.

Iodalia is exploited in a way to suggest its use to the public for a host of diseases. Particularly reprehensible are the recommendations contained in a circular which accompanies the trade package that Iodalia:

> ". . . offers the same protection against grippe, bronchitis, pneumonia, tuberculosis, pleurisy and other infectious diseases that vaccine does against small pox . . ."
>
> "It is also the best preventive against the slight infections and ailments to which debilitated and delicate children are subject."

The Council voted that Iodalia be refused recognition.

Iodotone*

Eimer and Amend, New York, who market Iodotone, state that it is a solution of hydrogen iodid (hydriodic acid) in glycerin, containing 1 grain of iodin to each fluidounce. The unwarranted assertion is made that Iodotone

> ". . . will produce the constitutional effect of iodine in a shorter time than other preparations . . ."

This cannot be true, for it is certain that, because of the alkaline reactions of the tissues, iodids, whether administered as hydrogen iodid or as alkali iodids, must circulate in precisely the same form and therefore exert the same therapeutic effects in precisely the same way.

Eimer and Amend further assert that the ordinary iodids may to advantage be replaced by Iodotone. The absurdity of this claim is apparent when it is considered that it will be necessary to administer nearly one fluidounce of glycerin to obtain an amount of Iodotone equivalent to a 10-grain dose of potassium iodid. The additional claim that Iodotone will not disturb the stomach or produce the usual disagreeable symptoms of iodism is evidently unwarranted, for it is generally conceded that symptoms of iodism can be avoided only at the risk of insufficient iodin medication. Because of these unwarranted and misleading claims and because the name Iodotone would tend toward the uncritical use of the preparation as a general tonic, the Council voted that Iodotone be refused recognition.

Nourry Wine*

Nourry Wine (E. Fougera and Co., New York) is a proprietary iodin preparation said to contain 12 per cent. of alcohol and 1½ grains of iodin in combination with tannin to the fluidounce. Experiments made in the A. M. A. Chemical Laboratory demonstrate that the iodin contained in Nourry Wine is present either in the form of iodid ions or in a form very readily yielding iodid ions and that therefore its action will be that of ordinary iodid. Yet a circular asserts:

> "The Nourry Wine is the one preparation . . . able to introduce into the organism the active metalloid liberated little by little from the organic combination . . ."

While Nourry Wine contains but an insignificant proportion of iodin, the circular claims that "Nourry Wine presents a high dose of iodin." Further, the label on Nourry Wine and the circular which is wrapped with it suggests its use in a number of diseases in which iodin medication is considered of minor importance. These recommendations, bolstered up by testimonials from twelve to twenty-five years old, are likely to lead the public if not the medical profession to use this weak iodid wine where efficient treatment is called for. The attempt is made to give a further false value to Nourry Wine in the minds of those who prize everything that is foreign by the suggestion that it comes from France when in reality it is made in New York. In conclusion the Council held that, though the alcohol of the wine is the most potent constituent, the constant use in the advertising matter of the term "Nourry Wine," unqualified by the adjective "Iodinated," was mischievous as likely to lead to the thoughtless use of the preparation in cases unsuitable for iodin medication. The Council refused recognition to Nourry Wine.

Correspondence

Postgraduate Study; Foreign Realities Versus American Remedies

To the Editor:—We all know the enthusiasm with which American physicians have sought the European clinics of Berlin and Vienna for postgraduate medical work. Hundreds of physicians each year flock thither. They stay varying lengths of time but generally are content with a few weeks or two or three months at the most. To the average layman such study in Europe casts a halo of superiority about the physician possessing it. It is a matter of common parlance to say, "Dr. So and So, yes, he has studied abroad, in Vienna." Most physicians in this country who are doing serious work and who are unable to go abroad for study look on Berlin or Vienna as their Carcassonne. If they never attain it, it remains a source of lasting regret or constant longing. Physicians will often make great sacrifices in order to visit the foreign clinics. Many of them are uncritical and easily persuaded of the tremendous advantages of the work. Some are frankly doing it just for a good time and for the advertisement which they know such a vacation will bring them on their return. But I am convinced that there is an ever-increasing number of physicians who go with all enthusiasm and expectation and who come back disappointed and disillusioned about foreign study. This in no way is a reflection on the medical profession in Germany, for they are only supplying the demand of the American physician and giving him what he wants. Neither does this statement apply to those who spend a year or more in serious work in a foreign clinic. But *they* are relatively few. They generally remain at one clinic and do not put in an appearance at the large centers.

The Germans are just beginning to appreciate American medicine and to read American literature. Why they have been so slow in recognizing the high standard of our work may be partly constitutional, but is, I think, much more directly due to the impression which American physicians studying abroad make. They are undoubtedly not representative of the best in the profession in America. The Anglo-American organization in Berlin and the American Medical Association of Vienna are partly responsible, in that they encourage the quick-lunch variety of study and have so organized special monthly courses for foreigners that it is almost impossible to make the Germans believe that we are not all quasi-quacks. The physician receives his medical pabulum as rapidly and in as large doses as he can pay for it. Go to any lunch counter at home and you may see a similar sight. All the crudities and mannerisms for which we are caricatured are in evidence, from the method of handling table utensils to the manner of stoking food and the peculiarities of our national tastes. Go to Vienna and you can see the same phenomena at the medical lunch counter. Some are there for one month and they gorge themselves, eating much and digesting little. Others are there for the side shows and the beer and take only food enough to get their certificate, which the University of Vienna issues to any one who can pay the price of a course whether he attends or not. Generally courses are served up in German and so rapidly served that the average American loses the meat and gets only the names. Sometimes the attempt is made to furnish English dishes, and then the job is generally botched. The German language alone is an all-sufficient argument against postgraduate study for the average American physician. All the teaching is didactic, and this again condemns it from the point of view of serious work in modern medicine. The laboratory method is after all the only safe one. In Vienna, you find men taking the most indigestible mixtures. Surgeons "brushing up" in neurology, gynecologists taking a little dab from the "Freudian School," many men listening to the refinements of differential diagnosis, who know almost nothing of the fundamentals. Most of the patrons of this great medical lunch counter get wildly enthusiastic, but they understand little of what they are eating and you are reasonably certain that they will have mental indigestion of the worst kind if they do not actually become seasick on their return and lose it all. What few misgivings they may have are obliterated by the general air of enthusiasm and the thought that nobody at home is any the wiser.

Without the slightest danger of being called snobbish, the average American physicians in Vienna most of us wish to avoid. Their absence is more flattering to our pride than their presence. Many of them are avowedly on a vacation. Others frankly say that their community only needs to be told that a man studied in Berlin to increase its respect for him. One man told me that he must visit Berlin before he returned as it was regarded as *the* center in his community. I suggested in joke that it might be enough to ride through and he acquiesced in all seriousness and I afterward learned that he spent one afternoon in Berlin on his way home. Such instances are not uncommon. A larger number, however, are perfectly sincere, but do not recognize how little they are really getting for their money and how infinitesimal is the knowledge which they carry home with them. These physicians go because it is the thing to do and they stay when they get there because they are uncritical and do not realize the absurdity of it all.

Physicians at large do not as yet appreciate the laboratory method in medical education and still cling to didactic teaching. It is a much easier thing to eat a meal set before you than to prepare the meal for your own delectation. But you cannot learn cooking from eating; neither can you learn medicine from hearing it taught.

A further reason for the continued popularity of foreign study is the fact that the general public is also in ignorance of its real value. It is our duty to set the facts before the public and enlighten them so that the name of "specialist" appended to one who has lived in Vienna for a few weeks will not be the open sesame to a lucrative practice.

Our other clear task lies before us: the efficient organization of postgraduate study here at home. We have all the facilities but lack organization. Now that the foreign market is closed, this is not only a duty but an imperative necessity and will be an opportunity for advancement and growth in this country to which the opprobrium of self interest cannot be attached. Whatever outside commercial advantages may come to us through the war they are far less important than the development of our own resources through cooperation and organization within our own borders.

The impetus given to postgraduate education in this country by the European war will be tremendous. Foreign centers of education will inevitably lose prestige. The tide will turn so that we may be the recipients of the European student as we are now of the European laborer.

Let us at once set to work and organize ourselves for this task and give to American physicians practical postgraduate work in *our own* language and with our own *trade-mark*.

Hugh Payne Greeley, Boston.

Traffic Officers' Neuroses

To the Editor:—In looking over medical literature for the past ten years, I can find no records of any trouble with the traffic officer which may be due directly to his occupation. Within the last year a few cases came under my observation, and I will only refer to them here preliminary to a more complete report in the future. It would be interesting to know if men in other cities have observed symptoms similar to those I mention here. This being an age of prevention rather than cure, I believe we may possibly do something for the poor traffic officer who stands on a dusty, busy corner all day long blowing an "ear-splitting," mouth-irritating, and if I may use a harsher term, "saliva-slobbering" whistle. The symptoms reported here usually disappear after the first six months of the officer's duty, with the exception of the chronic bronchitis and tendency to deafness. The syndrome which was uniformly present in the few patients who have consulted me so far is as follows:

Pain in the sternomastoids and soreness in the masseter muscles; also pains radiating to the shoulder via the trapezii, and soreness in the epigastrium, noticed particularly on pressure or when the patient sits down. There was tinnitus aurium and slight deafness. There was ptyalism and mild parotitis, but I could elicit no crepitus in the parotids such as we find in glass-blower's or musician's disease. There was pharyngitis, bronchitis and cough in the morning. All complained of intense hunger, stating that they had to eat five or six times a day. As to the etiology of the foregoing symptoms, I will say without hesitation that the whistle is either directly or indirectly responsible. I believe the pains radiating to the shoulders and back of the neck by way of the trapezii are due to the fact that the officer takes a sudden inhalation before blowing so many times a day, always bringing these muscles into play. The pain in the masseters is due to the officer developing a habit of holding the whistle between his teeth between times.

So far I have found soreness in the epigastrium only in stout men, which I think is due to sudden jarring of the stomach when blowing the whistle. The ptyalism and mild parotitis I think is chiefly due to the parotids and other salivary glands being constantly stimulated by the metal whistle. The tinnitus aurium and slight deafness is probably due to the officer ballooning the ear-drums and eustachian tubes so often during the day, and also to noise. One man, who had been on the force on a prominent corner for seven years, complained of gradual and progressive deafness.

The irritated mouth is directly due to the whistle, and who knows, as those men get older, but that a more malignant trouble may develop? I mean epithelioma of the lip. The bronchitis is due to sudden inhalations of dust particles directly into the bronchi with the mouth open just before the officer blows the whistle.

The hunger is probably due to the ptyalism, and also of course to the officer being in the fresh air.

I will state here that those who have consulted me so far declare that they never had any of those troubles before they became traffic officers, and on resting and withdrawing the whistle for a few days most of the symptoms disappeared.

A. J. Caffrey, M.D., Milwaukee, Wis.

Crotalin in Epilepsy

To the Editor:—The concluding paragraphs of the article on "Crotalin in Epilepsy," by C. L. Jenkins and A. S. Pendleton (The Journal, Nov. 14, 1914, p. 1749), indicate that the convulsions of epileptics are increased by its use and that it has no beneficial effect on the mental condition of the patient. In spite of this, and in spite of the dangers pointed out by Anderson and others, the wording of the authors might be interpreted to mean that they condone or perhaps even invite its use because it satisfies "the abnormal craving for medicine which all epileptics have." I feel certain that this was not their intention, and that they really wished to explain that any apparent benefits are due simply to the psychic effects of "doing something"; but unless they state their position more clearly, it may be feared that it will lead to the uncritical use of crotalin and to the haphazard, ill-considered use of medicine in general.

C. W. Stone, M.D., Cleveland.

[This letter was referred to the authors who replied:]

To the Editor:—In reply to the comment regarding our paper on "Crotalin in Epilepsy," we wish to say in no uncertain terms that it was not our purpose either to condone or to invite the use of this substance.

The sentence criticized was added to account for the apparently good effects occasionally seen in the beginning of its use in certain isolated cases.

In our experiments we believe that a sufficiently large number of cases were treated over a sufficiently long period to eliminate possible sources of error, and our conclusions as stated were that the drug did harm and, so far as we could determine, no good. The sentence was added as a warning to those who might imagine that they were obtaining good results in the beginning of treatment.

C. L. Jenkins, M.D., and A. S. Pendleton, M.D.,
Raleigh, N. C.

The New Conception of the Family Physician.—While I realize that it is the ultimate aim of public hygiene to make the physician in the sense of a pill peddler superfluous, I appreciate equally well that he will be all the more needed to practice medicine in the modern sense of the word. . . . But where is the field of the general practitioner, I hear some ask. He is the family adviser as he has been in the past but on a more scientific basis—he is the family health adviser if not the family physician and his relation to each of "his families" is even more sacred than in the days of old. He is expected to keep the baby well, not merely to give it medicine when ill; he is called in to examine the children of school age from time to time and to give advice as to their work and play; he is asked to pass on the health of the youthful son and daughter and find out why this loss of weight or want of appetite, and he must keep track of father and mother to see that they do not work and worry so much that their health may be impaired or their lives shortened.—Guy L. Kiefer, *Jour. Mich. State Med. Soc.*

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

HAND LOTIONS AND CHAPPED HANDS

To the Editor:—Please furnish me a formula for a hand lotion to be used in offices where it is necessary to wash frequently. I do not mean an antiseptic, but something to prevent chapping and irritation of the skin. R. S. Goux, M.D., Detroit.

Answer.—Hand lotions are generally of two types: (1) glycerin solutions of the glycerin, rose water and benzoin kind, and (2) gelatinous liquids made with tragacanth, quince seed, or some other water-soluble colloid. The glycerin lotions work well with some skins and are the most satisfactory to an occasional individual, but as a rule they are not the best, first, because the glycerin tends to make drier a skin already too dry, and, second, because these lotions have little or no detergent effect and do not clean the skin.

The tragacanth and quince seed lotions are better, and of these the tragacanth lotions are certainly as good as any other and are very cheap and easy to make. A formula for such a lotion given by Pusey is as follows:

Tragacanth	gr. 80
Glycerin	℥ ss
Boric acid	ʒ ss
Water ... q. s.	Oi
Oil of bergamot	♏ iv
Oil of lavender	♏ ii
Oil of rose	♏ i

The oils mentioned being added as a perfume might be omitted, one or all of them, according to the wish of the prescriber.

The boric acid, glycerin and waters are first mixed, the tragacanth added and the mixture agitated until the tragacanth is dissolved. This makes a rather thick mucilage; it can be changed to any consistency desired by slight increase or decrease in the amount of tragacanth.

A lotion like this has a considerable detergent effect; it is a tolerable substitute for soap, and if it is freely rubbed over the hands and wiped off, either with or without the use of water, cleans the skin of all but the most tenacious dirt. It, of course, cannot be effectually used as a complete substitute for soap. Such a lotion has the advantage over soap that it not only is not irritating to sensitive skin but also is bland and soothing. It thus tends to prevent and eventually to cure chapping of the hands.

The chief reason for chapping of the hands is the lack of fat in the skin in cold weather. Fat production in the skin is at a minimum in cold weather, because of the diminished sebaceous and sweat secretion. This and the dry air of winter make the skin dry and vulnerable at the very time when the cold air is itself irritating. This combination leads readily to chapping, if the hands must be exposed much to soap and water, and particularly if the irritation of antiseptics is added, as in the case of physicians and nurses.

The first thing to do to prevent or overcome the condition is to supply, by greasing the skin occasionally, the lacking fat in the skin. Almost any bland fat or semisolid hydrocarbon will do for this purpose, but nothing is better than a well-made cold cream. The next and the more difficult thing to do is to avoid soap and water—especially soap—as much as possible; and it is here that hand lotions serve a very useful purpose.

LITERATURE ON MENSTRUATION

To the Editor:—Please let me know of any small works there may be on the subject of menstruation. D. A. S., M.D., Manitoba.

Answer.—The following is a list of references on this subject:

Jacobi, M.: Question of Rest for Women During Menstruation, G. P. Putnam's Sons, 27 West Twenty-Third Street, New York City, price, $2.

Gengenbach, F. P.: Precocious Menstruation, The Journal, Aug. 23, 1913, p. 563.

Galloway, D. H.: Unique Case of Vicarious Menstruation, The Journal, Nov. 22, 1913, p. 1897.

Dannreuther, W. T.: Corpus Luteum Organotherapy in Clinical Practice, The Journal, Jan. 31, 1914, p. 359.

Mosher, C. D.: Physiologic Treatment of Congestive Dysmenorrhea and Kindred Disorders Associated with Menstrual Function, The Journal, April 25, 1914, p. 1297.

Chisholm, C.: Menstrual Molimina, *Jour. Obst. and Gynec. of Brit. Emp.*, May, 1913; abstr., The Journal, July 26, 1913, p. 309.

Hansen, T. B.: Premenstrual Rise in Temperature, *Beitr. z. Klin. d. Tuberk.*, 1913, xxvii, No. 3; abstr., The Journal, Sept. 13, 1913, p. 903.

Wiese, F. W.: Menstrual Rise in Temperature with Pulmonary Tuberculosis, *Beitr. z. Klin. d. Tuberk.*, 1913, xxvi, No. 4; abstr., The Journal, July 12, 1913, p. 154.

Passow, A.: Psychoses and Menstrual Disturbances, *Med. Klin.*, March 22, 1914; abstr., The Journal, April 25, 1914, p. 1367.

Driessen, L. F.: Necrobiotic Endometritis from Abnormal Menstruation, *Zentralbl. f. Gynäk.*, April 18, 1914; abstr., The Journal, May 23, 1914, p. 1700.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Alabama: Montgomery, Jan. 5, 1915. Chairman, Dr. W. H. Sanders, Montgomery.

Alaska: Juneau, Jan. 5, 1915. Sec., Dr. H. C. DeVighne, Juneau.

Arizona: Phoenix, Jan. 5-6, 1915. Sec., Dr. John Wix Thomas, 200 Nat'l Bank of Ariz. Bldg., Phoenix.

Illinois: Chicago, Jan. 13-15, 1915. Sec., Dr. C. St. Clair Drake, Springfield.

Indiana: Indianapolis, Jan. 12-14, 1915. Sec., Dr. W. T. Gott, State House, Indianapolis.

Iowa: Des Moines, Jan. 19-21. 1915. Sec., Dr. Guilford H. Sumner, Capitol Bldg., Des Moines.

Kentucky: Louisville, December 16-18. Sec., Dr. A. T. McCormack, Bowling Green.

Maryland: Homeopathic, Baltimore, December 15-16. Sec., Dr. O. N. Duvall, 1817 N. Fulton, Baltimore.

Minnesota: Minneapolis, Jan. 5-8, 1915. Sec., Dr. Thomas McDavitt, 814 Lowry Bldg., St. Paul.

Missouri: St. Louis, December 14-16. Sec., Dr. J. A. B. Adcock, State House, Jefferson City.

New Hampshire: Concord, December 29-30. Regent, Mr. H. C. Morrison, Concord.

New Mexico: Santa Fe, Jan. 11, 1915. Sec., Dr. W. E. Kaser, E. Las Vegas.

North Dakota: Grand Forks, Jan. 5, 1915. Sec., Dr. G. M. Williamson, Grand Forks.

Oklahoma: Oklahoma City, Jan. 12-14, 1915. Sec., Dr. John W. Duke, Guthrie.

Rhode Island: Providence, Jan. 7, 1915. Sec., Dr. Gardner T. Swarts, State House, Providence.

South Dakota: Pierre, Jan. 12, 1915. Sec. Dr. P. B. Jenkins, Waubay.

Utah: Salt Lake City, Jan. 4-5, 1915. Sec., Dr. G. F. Harding, 407 Templeton Bldg., Salt Lake City.

Vermont: Montpelier, Jan. 11-13, 1915. Sec., Dr. W. Scott Nay, Underhill.

Virginia: Richmond, December 15-18. Sec., Dr. J. N. Barney, Fredericksburg.

Washington: Walla Walla, Jan. 5, 1915. Sec., Dr. C. N. Suttner, Baker Bldg., Walla Walla.

Wisconsin: Madison, Jan. 12-14, 1915. Sec., Dr. John M. Beffel, 3200 Clybourn St., Milwaukee.

Idaho April Report

Dr. John F. Schmershall, secretary of the Idaho State Board of Medical Examiners, reports the written examination held at Wallace, April 7-8, 1914. The total number of subjects examined in was 11; total number of questions asked, 110; percentage required to pass, 75. The total number of candidates examined was 15, of whom 13 passed and 2 failed. Two candidates were licensed through reciprocity. The following colleges were represented:

PASSED College	Year Grad.	Per Cent.
University of Colorado	(1912) 80; (1913)	84.5, 87
George Washington University	(1910)	89
College of P. and S., Chicago	(1902)	80
Jenner Medical College	(1897)	83
Northwestern University	(1909)	86.7
Rush Medical College	(1904)	83
University of Illinois	(1913)	89.9
University of Louisville	(1912)	82
University of Maryland	(1884)	88
Detroit College of Medicine	(1895)	86
Albany Medical College	(1910)	82
FAILED		
Ensworth Medical College	(1908)	73.7
Royal College of Surgeons, Edinburgh	(1910)	71

LICENSED THROUGH RECIPROCITY College	Year Grad.	Reciprocity with
College of P. and S., Baltimore	(1903)	Utah
University of Toronto	(1892)	Utah

Georgia June Report

Dr. C. T. Nolan, secretary of the State Board of Medical Examiners of Georgia, reports the written examination held at Atlanta and Augusta, June 3-5, 1914. The total number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 80. The total number of candidates examined was 173, of whom 161 passed and 12 failed. Seven candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Birmingham Medical College	(1913)	87
Medical College of Alabama	(1896)	82
University of Alabama	(1914)	94
Atlanta College of Phys. and Surg	(1912)	86, 88
Atlanta Medical College	(1914)	80, 80, 81, 81, 81, 82, 83, 83, 83, 84, 84, 84, 85, 85, 85, 85, 85, 85, 85, 85, 85, 85, 85, 85, 85, 86, 86, 86, 86, 86, 86, 86, 86, 86, 87, 87, 87, 87, 87, 87, 88, 88, 88, 88, 88, 88, 88, 88, 88, 88, 88, 88, 88, 88, 89, 89, 89, 89, 89, 89, 89, 89, 89, 89, 89, 89, 89, 89, 89, 89, 90, 90, 90, 90, 90, 90, 90, 90, 91, 91, 91, 91, 91, 91, 91, 91, 92, 92, 92, 92, 92, 92, 92, 92, 92, 92, 93, 93, 93, 93, 93, 93, 93, 93, 93, 93, 94, 94, 94, 95, 95, 96, 96.
Atlanta School of Medicine	(1908) 80; (1910)	80
Georgia College of Eclectic Med. and Surg	(1914)	80, 81, 81, 84
University of Georgia	(1912) 84; (1913) 86; (1914)	81, 84, 85, 86, 86, 86, 87, 88, 88, 89, 89, 90, 90, 92, 92, 93, 93, 94, 95.
Bennett Medical College	(1912)	82
Chicago College of Med. and Surg	(1913)	85, 85
Johns Hopkins University	(1913)	93
University of Maryland	(1913)	90
New York Homeo. Med. Coll. and Flower Hosp	(1913)	87
North Carolina Medical College	(1905)	82
Medical Coll. of the State of S. C.	(1913)	90
Meharry Medical College	(1913) 80; (1914)	80, 80, 81, 83
Memphis Hospital Medical College	(1913)	82
Vanderbilt University	(1913)	87, 92

FAILED

College	Year Grad.	Per Cent.
Georgia College of Eclectic Med. and Surg.	(1914)	65, 69, 71, 73, 73, 74.6, 75, 76.
Southern College of Med. and Surg	(1913)	74, 76
Knoxville Medical College	(1908)	71
Meharry Medical College	(1908)	70

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Kentucky University	(1904)	Kentucky
Johns Hopkins University	(1911)	Maryland
Maryland Medical College	(1908)	Maryland
Univ. of Michigan, Dept. Med. and Surg	(1911)	Nebraska
University of Nebraska	(1912)	Nebraska
Eclectic Medical College, Cincinnati	(1913)	Missouri
Baylor University	(1913)	Maryland

Illinois June Report

Dr. C. St. Clair Drake, secretary of the Illinois State Board of Health, reports the written examination held at Chicago, June 23-25, 1914. The total number of subjects examined in was 16; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 229, of whom 163 passed and 63 failed. Three candidates did not complete the examination. The following colleges were represented:

PASSED

College	Year Grad.	Total No. Examined
Bennett Medical College	(1913, 3) (1914, 11)	14
Chicago College of Med. and Surg	(1913, 2) (1914, 39)	41
Hahnemann M. Coll. and Hosp., Chicago	(1900, 1) (1914, 6)	7
Jenner Medical College	(1914)	2
Northwestern University	(1914)	19
Rush Medical College	(1914)	15
University of Illinois	(1912, 1) (1914, 57)	58
Central College of P. and S., Indianapolis	(1897)	1
Johns Hopkins University	(1914)	1
St. Louis University	(1914)	2
Fordham University	(1912)	1
Ohio-Miami Medical College	(1914)	1
Western Reserve University	(1914)	1

FAILED

College	Year Grad.	Total No. Examined
Bennett Medical College	(1912, 1) (1913, 1) (1914, 6)	8
Chicago Coll. of M. and S.	(1909, 1) (1911, 1) (1914, 24)	26
Hahnemann Med. Coll. and Hosp., Chicago	(1914)	6
National Medical University, Chicago	(1909)	1
Northwestern University	(1914)	3
Reliance Medical College, Chicago	(1911)	1
Rush Medical College	(1911, 1) (1913, 1) (1914, 1)	3
University of Illinois	(1914)	8
Louisville and Hospital Med. Coll.	(1908)	1
American Medical College, St. Louis	(1914)	1
St. Louis University	(1914)	1
Meharry Medical College	(1908, 1) (1914, 3)	4

Iowa June Report

Dr. Guilford H. Sumner, secretary of the Iowa State Board of Medical Examiners, reports the written examination held at Iowa City, June 11-13, 1914. The total number of subjects examined in was 8; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 53, of whom 52 passed and 1 failed. Seventeen candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Bennett Medical College	(1914)	89, 90.1
Chicago Coll. of Med. and Surg.	(1913) 89.6; (1914)	89.4, 92.7, 93.1, 93.4.
College of Phys. and Surgs., Chicago	(1911)	91.6
Hahnemann Med. Coll. and Hosp., Chicago	(1911)	80.1
Northwestern University	(1911) 93; (1914)	86.1, 86.9, 91.6
Rush Medical College	(1911) 92.1; (1912) 85; (1913) 86; (1914)	88.5, 89.9, 95.6.
University of Illinois	(1914)	95.2
State University of Iowa, Coll. of Med.	(1914)	85.5, 86.6, 88, 88.2, 88.7, 89.1, 89.4, 91.1, 91.1, 91.4, 92.5, 92.6, 92.9.
University of Michigan, Dept. of Med. and Surg	(1914)	87.4
American Medical College	(1914)	90.6
Barnes Medical College	(1899)	78
Ensworth Medical College	(1914)	87.5, 89
St. Louis University	(1913) 86.2; (1914)	87.7, 91.5
Washington University	(1914)	89.1
John A. Creighton Medical College	(1914)	86.1, 87.5, 88.1
Western Reserve University	(1914)	92.7
Jefferson Medical College	(1914)	84.6
University of Pennsylvania	(1909)	83.6
Woman's Medical College, Phila	(1914)	84.9
Memphis Hosp. Med. Coll	(1912)	89
Vanderbilt University	(1910)	81.5
Western University, Ontario	(1912)	82.2

FAILED

College	Year Grad.	Per Cent.
St. Louis College of Phys. and Surgs	(1906)	70.2

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Chicago College of Med. and Surg.	(1910) Colorado; (1913)	Missouri
Hahnemann Med. Coll. and Hosp., Chicago	(1912)	Indiana
College of Phys. and Surgs., Baltimore	(1912)	W. Virginia
American Medical College, St. Louis	(1908)	Missouri
Kansas City Hahnemann Medical College	(1912)	Kansas
St. Louis University	(1910)	Missouri
University Medical College, Kansas City	(1902) (1904)	Kansas
John A. Creighton Medical College	(1912) (1913)	Nebraska
Lincoln Medical College	(1902) (1904)	Nebraska
University of Nebraska	(1913)	Nebraska
Starling Medical College	(1898)	Ohio
Marquette University	(1913)	Wisconsin
Trinity Medical College, Toronto	(1894)	Michigan

Kansas June Report

Dr. H. A. Dykes, secretary of the Kansas State Board of Medical Registration and Examination, reports the written examination held at Kansas City, June 9-11, 1914. The total number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 24, all of whom passed. Thirteen candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Chicago College of Medicine and Surgery	(1914)	82
University of Kansas	(1914)	78, 81, 81, 82, 82, 82, 82, 83, 85, 85
Ensworth Medical College	(1914)	75
Kansas City Hahnemann Medical College	(1914)	77, 79, 79, 79, 79, 81, 82, 85.
University of Oklahoma	(1914)	82, 88
University of Pennsylvania	(1914)	81
Meharry Medical College	(1913)	75

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Denver College of Medicine	(1899)	Colorado
University of Colorado	(1897)	Missouri
Rush Medical College	(1912)	Illinois
Keokuk Medical College	(1900)	Ohio
Barnes Medical College	(1911)	Missouri
Kansas City Homeopathic Medical College	(1898)	Missouri
Kansas City Medical College	(1895) (1901)	Missouri
Univ. Med. Coll., Kansas City	(1901) (1906) (1912)	Missouri
Pulte Medical College	(1880)	Nebraska
Fort Worth School of Medicine	(1913)	Texas

Book Notices

BLOOD-PRESSURE: ITS CLINICAL APPLICATIONS. By George William Norris, A.B., M.D., Assistant Professor of Medicine in the University of Pennsylvania. Cloth. Price, $3 net. Pp. 372, with 99 illustrations. Philadelphia: Lea & Febiger, 1914.

The advance of medical knowledge and the more intimate correlations of experimental and clinical observations are evident in the books recently published on the subject of blood-pressure. The work of Norris is an attempt to exhibit this subject in a thorough manner with reference to its scientific relations. The facts of physiology are briefly given and these are followed by a thorough explanation of the methods of determining blood-pressure. Various instruments are described, the relative advantages of the different methods shown and some advice given as to the choice of an instrument. Venous and capillary pressure are discussed briefly as befits their minor clinical importance. Methods of determining functional efficiency of the circulation are described at considerable length. The rest of the book, comprising about one-half of the volume, is concerned with the clinical applications. Hypotension and hypertension are discussed. Here the author shows his conservatism in that he insists that neither of these conditions is per se an indication for therapeutic interference. Low blood-pressure may be a provision of nature for economy of energy and demands no treatment unless there is evidence of a progressive condition. Similarly, he insists that hypertension is an adjustment of nature which should not be interfered with directly, but changes should be effected by reaching the cause of the hypertension. "We must never thoughtlessly or ruthlessly interfere with Nature's delicately balanced mechanism of compensation. Only in the face of impending circulatory failure of vascular rupture or temporary pain is direct treatment indicated. . . . Just how much pressure lowering is possible and desirable must be determined for each individual case, and in no instance is such an effect to be sought merely by the administration of drugs." The hypotensive action of radio-active substances is briefly described. Chapter 14 gives an alphabetical list of remedies, drugs and glandular extracts, describing their effect on arterial tension and their therapeutic use. This list seems to be especially complete as it includes some drugs like mistletoe which are not described in ordinary books on pharmacology. Throughout the clinical part the discussion is conservative and judicial, while at the same time it exhibits an amount of research which inspires confidence in its reliability. We believe that this thoroughness and exactness, together with the practical treatment given various subjects, will secure for the present work a place in the first rank of treatises on this important subject.

THE CURE OF ALCOHOLISM. By Austin O'Malley, M.D., Ph.D., LL.D. Cloth. Price, $1.25. Pp. 312. St. Louis: B. Herder, 1913.

The subject of alcoholism is viewed by the author from a broad point of view more as a moral and religious defect than as a purely physical ailment. Hence, he insists that the cure of alcoholism can be achieved only by the cultivation of the virtues, of which sobriety is only one manifestation which cannot be expected to exist alone.

Only a small part of the book is devoted to the medical aspects of the subject. The physiology and pathology are given more with reference to the instruction of lay readers than to physicians. A large space is given to the discussion of the relations of alcoholism to heredity and alcoholic imbecility. The physical treatment of alcoholism is considered in Chapter 5 and is in accord with the best modern treatment. The rest of the book is given to religious and theologic discussions which take a somewhat wider range than the mere consideration of drunkenness. The author seems liable to occasional, rather sudden, digressions. For instance: In the chapter on the ethics of drunkenness, several pages are given to the description of poisonous serpents and the treatment of snake poisoning in which other measures are recommended, but not alcohol. The author discusses moral means for the cure applicable to non-religious or non-Catholic individuals and the supernatural control of intemperance in which the cooperation of religion is discussed. An appendix is devoted to the subject of opium and other drugs. While not all readers may be disposed to agree with the author's theology, a perusal of this book cannot help but call attention to phases of the treatment of alcoholism which are apt to be much neglected.

NUTRITION. A Guide to Food and Dieting. By Charles E. Sohn, F.I.C., F.C.S. Cloth. Price, $1.25. Pp. 256, with illustrations. New York: E. B. Treat & Co., 1914.

This book appears to be intended as an elementary treatise on dietetics. The author seems to be strongly impressed with the danger in the United Kingdom from the prevalence of dyspepsia. He states that it is calculated that there are in the United Kingdom at least 8,000,000 persons suffering from dyspepsia in some shape or form. This is a strange admission in view of the frequent characterization by English writers of the United States as a nation of dyspeptics. The statement of facts in the book is in general correct and clear. Ventilation is discussed from the point of view of the contamination of air by products of respiration. In this section the author seems to have taken no notice of modern teaching with regard to the nature of foul air. The book seems to be quite free from any tendency toward fads and there is no evidence of the influence of proprietary interests. The author notices the standard of protein requirement advocated by Chittenden but does not favor its adoption. The consideration of alcohol is apparently entirely favorable to its use as a food. The book contains a large amount of valuable information and, while it is not complete as a medical text-book on dietetics, it would be of great value for the use of intelligent laymen.

THE PROBLEM OF THE NATIONS. A Study in the Causes, Symptoms and Effects of Sexual Disease and the Education of the Individual Therein. By A. Corbett-Smith, M.A., F.R.G.S. Cloth. Price, $1 net. Pp. 107. New York: Paul B. Hoeber, 1914.

This is an English publication embracing a study of the causes, symptoms and effects of sexual disease and the necessity of the education of the individual therein. As the author states in his introduction, it is not intended as a scientific research but is an effort to place before the lay reader a plain straightforward account of the dangers of venereal infections. The fact that the writer is a lawyer and not a physician really increases the strength of the appeal, while the facts are presented in an entirely different manner from any of our American publications in this field. The facts themselves are naturally very much the same. Probably the method of presentation will make more of an impression on young men than anything which American writers have evolved. It is written specially for the young man beyond the schoolboy age. The style is plain, straightforward and thoroughly manly throughout without any moralizing, unnecessary sentimentality or undue appeal to fear. The writer knows the class to whom he appeals and his book is more like a personal, free conversation or letter than like a moral pamphlet.

I. K. THERAPY WITH SPECIAL REFERENCE TO TUBERCULOSIS. By W. E. M. Armstrong, M.A., M.D., Bacteriologist to the Central London Ophthalmic Hospital. Cloth. Price, $1.50 net. Pp. 83. New York: Paul B. Hoeber, 1914.

The paucity of references to I. K. in the literature of the past three years would seem to justify the conclusion that Spengler's method had failed to make good. The sporadic appearance of a few articles from American authors seems to have aroused no general interest. The method seems to have been imported into England, and the present work represents an effort to popularize it in that country. The author takes the part of an advocate. Considerable space is given to an exposition of the well-known principles of immunity. When special reference is made to I. K. he seems to be content with assertion merely. No proof is given of the statements of Spengler. It is assumed as a fact that the red blood-cells contain the bulk of the immunizing substances in the tissues of immune animals. The clinical results are detailed without a hint that any unfavorable results have been obtained. There is no notice of the controversy which has occurred regarding this treatment or of the published statements of its worthlessness. The author gives a bibliography which includes a number of authors who have given unfavorable reports, but nothing is said of their reports. The book must be regarded as non-critical and chiefly useful as giving an idea of the theory and method of Spengler which could be given for intelligent medical men in much less space.

Rose and Carless's Manual of Surgery for Students and Practitioners. Ninth edition. Revised by Albert Carless, M.B., M.S., F.R.C.S., Professor of Surgery, King's College Hospital, London. Cloth. Price, $6 net. Pp. 1408, with 609 illustrations. New York: William Wood & Co., 1914.

The eighth edition of this book appeared in 1911, and as the author states, the three years since have not been characterized by any revolutionary or wonder-working novelty. However, "salvarsan and radium in particular may be mentioned as subjects to the consideration of which a vast amount of work has been devoted. Salvarsan stands as the conqueror of the worst ill effects of syphilis, if only it be employed in time; radium has proved itself a potent agent for good in many cases, but the magniloquent prophets who hailed it as the victor of cancer have not yet proved their claims." A new chapter is added on the use of heat, light, electricity and radium, as well as new illustrations and colored plates. The book is printed on thin paper, making the volume light in weight and convenient for handling. The author adds a personal note by saying:

> "I trust that this edition may prove even more helpful than those which have preceded it, and pray that when the tenth edition is required the sounds of war strife, which boom on the ear as these lines are penned, may long have ceased, and that a righteous peace leading to a happy competition of race with race in the effort to promote, not the destruction, but the welfare of mankind of all nationalities may have been established."

Let us hope with him that not too long a period passes before the tenth edition appears.

Tropical Diseases. A Manual of the Diseases of Warm Climates. By Sir Patrick Manson, G.C.M.G; M.D., LL.D., Lecturer in the London School of Tropical Medicine. Fifth edition. Cloth. Price, $5 net. Pp. 937, with 255 illustrations. New York: Williaim Wood & Co., 1914.

The fourth edition of this work appeared in 1907. Since that time great advances have occurred in the field of tropical medicine, relating to beriberi, yaws, verruga, sleeping-sickness and pellagra. In the preface the author states that while tropical pathology has been actively and successfully studied, prevention and treatment of tropical diseases have also not been neglected; such newer investigations of a practical nature are also included in the new edition. A few which are mentioned for example are the treatment of yaws and relapsing fever by salvarsan, the treatment of trypanosomiasis by antimony, and perhaps the most important of all, the substitution of emetin for ipecac in the diagnosis and treatment of amebiasis. The work is full of valuable illustrations, including colored plates and instructive charts. The parasites and various flies which act as carriers are fully illustrated. American and English surgeons and physicians whose work carries them into these tropical zones, as well as those men of broad knowledge who follow the entire field of medicine, know the valuable nature of this work.

Life and Law. The Development and Exercise of the Sex Function, Together with a Study of the Effect of Certain Natural and Human Laws and a Consideration of the Hygiene of Sex. By Maude Glasgow, M.D. Cloth. Price, $1.25 net. Pp. 194. New York: G. P. Putnam's Sons, 1914.

This is another of the numerous books recently written for women on sex and its various problems. The point of view of the writer is that of a moderate feminist. The attitude of the writer can best be illustrated by a quotation from Chapter 12, in which the development of women and her social and legal status is under discussion: "Even as late as the present century a male writer declared that 'the function of reproduction alone excused or explained woman's existence.' The writer to whom reference has been made apparently was not aware that biologic research had shown that it was the male sex that was created solely to save the race and as an afterthought of nature." While the book gains some novelty on account of this point of view and is worth reading by the careful student of present-day problems, it does not contain any original material or anything that is a special contribution to the discussion.

Infection and Resistance. An Exposition of the Biologic Phenomena Underlying the Occurrence of Infection and the Recovery of the Animal Body from Infectious Disease. By Hans Zinsser, M.D., Professor of Bacteriology at the College of Physicians and Surgeons, Columbia University, New York, with a Chapter on Colloids and Colloidal Reactions by Prof. Stewart W. Young. Cloth. Price, $3.50 net. Pp. 546. New York: The Macmillan Company, 1914.

The practical importance of the subject of immunity, in both the prophylaxis and the treatment of disease, is calling forth a number of excellent works on the subject. The present book must be reckoned among the best of those that have appeared for the use of the physician. The study of the subject is both thorough and practical. The method of vaccine therapy is discussed and in many cases the evidence for the value of this method of treatment is given at some length. The book, however, does not quite take the place of a comprehensive work on vaccine therapy. In addition to the discussion of the subject of anaphylaxis, supplementary chapters are given on Abderhalden's work on protective ferments and on colloids. The statement of facts in general is concise and clear. The book is well illustrated with drawings, several of which are colored.

The Next Generation. A Study in the Physiology of Inheritance. By Frances Gulick Jewett. Cloth. Price, 75 cents. Pp. 236, with illustrations. Boston: Ginn & Co., 1914.

This is one of the Gulick Hygiene series. Its dedication to boys and girls, the guardians of the next generation, as well as the specific statement of the author in the introduction that the purpose of the book is to let young people know the perils which threaten them and how to avoid them, place the book in the rapidly growing group of publications for the sex education of boys and girls. Mrs. Jewett's antecedents, training and experience have given her an unusual equipment for such a task. This book is perhaps from a constructive point of view the best prepared of any of the recent publications in this field. It is well illustrated, unusually well printed and should prove a valuable addition to the series to which it belongs.

A Manual of Physiology with Practical Exercises. By G. N. Stewart, M.A., D.Sc., M.D., Professor of Experimental Medicine in Western Reserve University. Seventh edition. Cloth. Price $4 net. Pp. 1132, with 467 illustrations. New York: William Wood & Co., 1914.

The period of use represented—from 1896 on—has shown that Stewart's text-book may be depended on to keep pace with modern advances in this particular field. The seventh edition has been extensively revised. The chapter on metabolism has been enlarged and much of it rewritten. Great changes have been made in those portions devoted to the blood-gases, enzymes, nervous system, etc. A change in arrangement is made by dividing the longer chapters into sections and increasing the number of chapters. Many new illustrations and new drawings of old illustrations add in the improvement of an already good work.

A Text-Book of Pathology. With a Final Section on Post-Mortem Examinations and the Methods of Preserving and Examining Diseased Tissues. By Francis Delafield, M.D., LL.D., Emeritus Professor of the Practice of Medicine, College of Physicians and Surgeons, Columbia University, and T. Mitchell Prudden, M.D., LL.D., Emeritus Professor of Pathology, College of Physicians and Surgeons, Columbia University. Tenth edition. Revised with the cooperation of Francis Carter Wood, M.D., Director of Cancer Research, Columbia University. Cloth. Price, $6 net. Pp. 1116, with 708 illustrations. New York: William Wood & Co., 1914.

The latest issue of this well-known book embodies recent advances in pathology. It quotes numerous references from recent literature and in its illustrations and arrangement maintains the excellent standard of previous editions.

Miscellany

Source and Supply of Drugs

We have previously commented on the likelihood of a shortage in drugs and the consequent increase in prices to be expected as a natural outcome of the European war. In *Public Health Reports* for October 9, Wilbert says that probably the chief reason for the rapid rise in prices was the fact that the available stocks of many of the staple articles during the summer months are usually at a rather low level, and that practically all of the great drug markets of the world are in the war zone, so that stocks on hand in these ports are not available for shipment. By far the greater number of drugs sold throughout the world are marketed via London, Hamburg or Trieste. A few products of the Dutch colonies are sold through Amsterdam, and some of the drugs produced in Turkey and Western Asia come directly from Constantinople. Many vegetable drugs deteriorate on keeping. These, known as botanicals, are usually kept on hand only in small quantities, and supplies are not kept over from year to year. The greatest difficulty in securing supplies of drugs during the coming year, however, will no doubt be encountered, Wilbert thinks, in connection with the so-called "synthetics." Practically from its beginning this business has been monopolized by European manufacturers. Even the simplest drugs, like benzol, anilin oil, phenol (carbolic acid), salicylic acid and benzoic acid, are produced almost exclusively in Europe. Benzoic acid is being quoted at ten times the price at which it could be purchased a month before the war. Salicylic acid is five times higher, and phenol ten times the price asked before hostilities began. Another example of this type is thymol. This article was quoted in July at approximately $2 per pound, while in October $15 a pound is asked, and the available stock is practically exhausted. This is true despite the fact that in this country there are unlimited amounts of the raw material. Much domestic coal-tar was previously sent to Europe to be there manufactured into numerous products, which were sent back to America with enhanced value. Farmer's Bulletin 188, entitled "Weeds Used in Medicine," contains illustrations of a number of drug plants and the necessary directions for gathering and curing many of the drugs which are now scarce. This pamphlet may be obtained by addressing the Superintendent of Documents, Washington, D. C. Needless to state, many of the alkaloids, such as cocain, morphin and quinin, will be widely used in the countries now at war, and the increased demand will result in higher prices. It is to be hoped, says Wilbert, that this particular burden of the war may have a remedying feature in that it will teach us to exercise greater care in the use of these commodities, will tend to encourage their production in this country, and will suggest the practicability of establishing for ourselves, and for the American community generally, a distributing center for the drug products of the world that will be independent of the now existing drug depots in European ports.

Treatment of Diabetes Fifty Years Ago

It is interesting occasionally to "hark back" and see behind the scenes fifty years ago. Occasionally such opportunities are offered in letters that were written "not for publication." Dr. R. L. Wilbur of San Francisco forwards us a copy of a letter written to his father by Dr. A. B. Palmer, a member of the Medical Department of the University of Michigan. Dr. Palmer held various positions in that university; according to our records he was professor of anatomy in 1852-1854; of materia medica, therapeutics and diseases of women and children, 1854-1860; of the theory and practice of medicine, pathology and materia medica, 1860-1861; of the theory and practice of medicine, and of pathology, 1861-1864; of pathology, the practice of medicine and of hygiene, 1864-1869; of pathology and the practice of medicine, 1869-1880, and of pathology and the practice of medicine and clinical medicine, 1880-1887. Dr. Palmer was a graduate of the College of Physicians and Surgeons of the Western District of New York in 1839, and died Dec. 23, 1887.

Dr. Vaughan, in a communication to the editor, states that Dr. Palmer, in his time, was a strong man in the profession, a thorough student, and availed himself of every opportunity to increase the width and scope of his professional knowledge, and that he was a great teacher, and always stood for the best in the profession.

Following is the letter:

D. L. Wilbur, Esq.

Dear Sir:—Your letter is at hand asking advice about your brother, who you say is affected with diabetes. It is always very unsatisfactory to treat a patient without seeing him, and you are not very full in your description of the case. I assume, however, that he has diabetes, passes a very large quantity of urine loaded with sugar, etc., and that there is no particular complication requiring attention. The disease, you are aware, is a very severe one, often—I may say generally—proving fatal sooner or later, and very soon in rapid and severe cases. The pathology and treatment (medicinal) is not as well established as in most other diseases, but the dietetic treatment is most important and is pretty well settled. The patient must avoid sugar and starchy foods as much as possible. All forms of sugar must be discarded entirely and bread, potatoes and fruit containing starch and sugar must be avoided as much as possible. He should live on fresh meat, eggs, soups, cheese (if it agrees), butter. Milk contains sugar, and much of it would be objectionable on that account.

Some persons cloy on these articles readily and need something in addition. The following kind of bran bread may be taken with the meat diet; Put 1 pound of bran in an oven, hot, for one-fourth hour; when warm and crisp grind in a fine coffee mill or pepper mill; mix with it half a pound of butter and the yolks of six eggs, 1 teaspoonful of bicarbonate of soda, and milk enough to make into a paste. Divide into cakes and bake in a quick oven. These cakes may be taken with butter or cheese.

Or another: 3 ounces of bran, 3 eggs, 1½ ounces of butter, 7 fluidounces of milk. Mix for a loaf. Just before putting it into the oven, add, mixing in with it, 35 grains of bicarbonate of soda and 3 drams of dilute hydrochloric acid. Bake in a basin well buttered for an hour or more. One of these kinds of bread to be used with the meat in place of ordinary bread or potatoes. There would be no objection to occasionally taking some tomatoes, or greens in the proper season. If vegetable substances be much craved for and the stomach seems suffering for them, a baked apple may be taken once in a few days. The skin should be kept warm, well clothed (flannel), and the warm bath—or quite as well warm sponge bath—should frequently be practiced. Must not remain in a warm bath too long as it debilitates—10 minutes or more—friction of skin after. The hot air baths with frictions agree better with some.

In the way of medicine I would advise that 30 grains of bicarbonate of soda be taken four times a day, as far as may be from the time of meals—say an hour or more before breakfast, an hour and a half before dinner, the same time before supper, and at bedtime. If very restless, an opiate may be taken at bedtime, and the bowels kept open by the mildest means if necessary. If much debility some tonic may be needed, as moderate doses of quinin and iron before each meal. This general plan is applicable to most cases. If there are special symptoms or complications, special methods of treatment would be indicated besides. This is the best that I can advise without more precise knowledge of the case. A moderate use of buttermilk occasionally might be indulged. The diet is most important and must be persisted in. I have known some cases apparently much benefited by using working cider. A variety of meats may be indulged—beef, poultry, venison and fish as well. It would be best perhaps to put this letter into the hands of some physician—as I suppose he has some attendant—to carry out. Should he find it convenient to visit me I could be more sure of adapting remedies properly to his case. I have been thus full in my directions as the case is one of great importance, and you would not have written me, had you not wished me to give it all the attention necessary, expressing myself as fully as I profitably could.

I would like to hear from you again as to results, etc. My usual fee for a professional letter on an unusual case of this kind—varying with the means of the patient—is from five to fifteen dollars. About ten dollars in this case would be right. Should you write me again about the case I will answer your letter briefly, if necessary, without additional fee.

Yours truly, A. B. Palmer.

Ann Arbor, Nov. 2, 1865.

Kala-Azar in Madrid

Del Diestro reports what he says is the first case of kala-azar published in Madrid. The patient is a boy of 14 months, of healthy parents and antecedents. The family is living now in a healthy third-floor apartment but until the last three months they lived in a cottage with many trees in an unhygienic quarter. He comments on the unusual circumstance of kala-azar developing so far inland and at an altitude of nearly 2,000 feet and in a child who has always lived there and has not been in known contact with persons or animals who could have imported the disease, but there is a suspicious case of febrile splenomegaly in a child near the family's former home. His illustrated article is published in the *Revista Clinica de Madrid*, Sept. 30, 1914.

Medicolegal

Unlawful Prescribing and Sale of Morphin—Validity of Indictment and Statute—"Legitimate Use"

(Commonwealth vs. Gabhart (Ky.), 169 S. W. R. 514)

The Court of Appeals of Kentucky reverses a judgment which sustained a demurrer to an indictment that charged the defendant, a regularly licensed and practicing physician, with unlawfully prescribing for, procuring for, selling and dispensing morphin to another person for purpose other than legitimate use. The indictment was found under the act of 1912, entitled "An act to regulate the sale of opium or its alkaloidal salts, or their derivatives or any admixture thereof." The court says that the demurrer to the indictment was sustained on the ground that the facts therein alleged failed to charge an offense under the statute. This conclusion was based on the theory that, as the indictment failed to charge that the morphin prescribed for and sold the purchaser by the defendant was an alkaloid or derivative of opium or an admixture containing opium, and that the court could not judicially know or say that such was its character, that omission rendered the indictment fatally defective.

While, however, morphin is not named in the statute as an alkaloid, derivative, or admixture of opium, the court does not suppose there is a person of ordinary intelligence or common understanding residing in the state but has familiar knowledge of its power as a narcotic, its deadly effect as a poison, and that it is an alkaloid or derivative of opium. The word "morphin" has as well-defined a meaning as the word "whisky," and its qualities and effect are as well known to the generality of the people of the state as are those of the intoxicant known as "whisky," and manifestly it would be a work of supererogation to allege in an indictment charging one with the unlawful sale of whisky that it is a spirituous liquor or intoxicant. The validity of the indictment was not affected by its failure to state that the morphin sold by the defendant under the circumstances therein alleged was an alkaloid or derivative of opium.

Nor does the court agree with the contention that the failure of the statute to define the words "legitimate use" renders it void for uncertainty. The word "legitimate," in the statute, is not used in its original sense of lawful, but in its secondary sense of proper or warranted, as when we speak of a "legitimate conclusion" or a "legitimate argument." Morphin is sold for legitimate purposes under the statute when, under the facts, a druggist or physician, acting according to the ordinary usage of the profession and exercising ordinary care, would have made the sale. This is a question for the jury. If, on the trial, the defendant makes the defense that the sale of morphin with which he is charged in the indictment was made for a legitimate use, it will be competent for him to show by the evidence of physicians or druggists that the use for which he sold the morphin to the purchaser was a legitimate one. On the other hand, the commonwealth may also introduce evidence to show that the use was not a legitimate one. After that, the court should instruct the jury so as to enable them to determine whether or not the sale was for a legitimate use as contemplated by the statute.

Provision as to Funds of Board of Medical Examiners

(Kenehan, State Treasurer, vs. Barber et al., State Board of Medical Examiners (Colo.), 143 Pac. R. 370)

The Supreme Court of Colorado says that it would seem that the clear intent of the statute of that state is that the board of medical examiners shall deposit all its receipts with the state treasurer at the end of each month, and that it may withdraw from the treasury such sums as may be necessary to meet its fixed obligations, either contracted or performed, within a given biennial period, but that its financial affairs must be closed at the end of each of such periods, as in the case of other state officers, so that the definite amount, if any, which shall then become the property of the state may be determined and transferred to the state fund. It is clearly within the power and authority of the board to determine absolutely the question of expenditure of the funds arising within the lawful discharge of its duties, except only that, in case of any balance remaining in the custody of the treasurer at the close of any biennial period, such balance shall be transferred to the general fund of the state, and become the property of the state at that time. Clearly the board may not withdraw such funds at a time near the close of one biennial period for the purpose of again depositing the same during a succeeding biennial period to defray expenses and obligations occurring in and during such succeeding period. But the treasurer has no other power or authority in this respect than to make the transfer of such funds, and only such funds, as shall appear to be in his custody at the close of a biennial period. He is not given any authority or power to review in any manner or pass on any of the official acts of the board. The statute confers on the board exclusive powers, not only in this matter, but in all others covered by the statute creating the board of medical examiners. The members of this board are made public officials, and must be presumed to have discharged their duties honestly and within the scope of their authority. That the board may have exceeded its powers or abused its discretion, or may have wilfully violated the law and abused the trust imposed, and in so doing may have deprived the state of a sum rightfully belonging to it under the law, is not a matter for the arbitrary determination of the state treasurer, to be disposed of by an entry on his books. The members of the board are answerable for their official conduct to the chief executive of the state, and their civil or criminal liability is a question for judicial determination, on a full and complete hearing in the light of the law and the facts.

Federal Court Without Power to Order Physical Examination

(Brace et al. vs. Central Railroad Co. (U. S.), 216 Fed. R. 718)

The United States District Court in Pennsylvania says that this was a common-law action to recover damages for alleged injuries sustained by a passenger on one of the defendant's trains. It was claimed that he had suffered a fracture of the skull, resulting in permanent injuries to his brain and mind. On a refusal to have him examined by disinterested physicians to determine the state of his mind and the extent of the injury, the defendant sought to have such an examination ordered under the direction of the court. But such an action is subject to the local law concerning matters of evidence. No power to make an order for the examination of the person of the plaintiff in a case like this is to be found at common law; hence in the absence of a state law the power does not exist. The question has been variously decided in the lower courts of Pennsylvania, but it nowhere appears that it has been considered by the state supreme court. And while the decision of the Supreme Court of the United States in the Botsford Case, 141 U. S. 250, has been slightly modified by the court in the later case of Camden Sub. Ry. Co. vs. Stetson, 177 U. S. 172, in holding that a statute enacted by the state of New Jersey regulating the practice should be enforced, it still remains that short of statutory authority the courts are powerless. Wherefore the order asked for is denied.

Physicians May Testify as to Usual Effect of Nervous Shock—Test of Admissibility of Opinion Evidence

(State vs. Wilson (W. Va.), 83 S. E. R. 44)

The Supreme Court of Appeals of West Virginia holds that the testimony of physicians as experts concerning the usual and ordinary effect of the severe nervous shock incident to a rape committed on a woman, the manifestations thereof, and their duration, as bearing on her credibility as a witness and the truth of her accusations, is admissible; but, it is not in character exclusively expert, the rejection thereof is harmless error. The test of the admissibility of opinion evidence, whether expert or non-expert, is the competency or incompetency of unskilled men, constituting a jury, to form as accurate and reliable an opinion on the subject-matter of the testimony as persons having special knowledge of the subject, from their learning, professions, and experience, or their possession of such knowledge of the subject-matter as it is impossible fully and completely to communicate to the jury. Physicians are students of human anatomy, and of the qualities, characteristics, and functions of the human body and all of its parts. Their knowledge of the nervous system, its functions, strength, weakness, and the effect of influence thereon of any character is obviously more extensive and reliable than that of persons who have never studied or had occasion to observe them, in the pursuit of their vocations. Physicians come in contact with them and have them under observation almost daily. Of course, non-experts, such as men constituting a jury, would have some knowledge of the subject, and know that a shock to the nervous system would produce effect; but their knowledge as to its forms, extent, and duration is certainly not as full and complete as that of a physician of recognized ability, and the litigant is entitled to submit to the jury all the relevant material evidence he has. In the cases of non-expert witnesses, they are allowed to express their opinions on the subject-matter of their evidence when they cannot put the jury in full and complete possession of all they observed, even though they are able to lay before the jury the substance of their observations.

Society Proceedings

COMING MEETINGS

American Association of Anatomists, St. Louis, Dec. 28-30.
American Physiological Society, St. Louis, Dec. 27-30.
Society of American Bacteriologists, Philadelphia, Dec. 29-31.
Southern Surgical and Gynecological Assn., Asheville, N. C., Dec. 15-17.
Western Surgical Association, Denver, Dec. 18-19.

SOUTHERN MEDICAL ASSOCIATION

Eighth Annual Meeting, held at Richmond, Va., Nov. 9-12, 1914

(Concluded from page 2069)

Treatment of Syphilis

Dr. E. H. Martin, Hot Springs, Ark.: Apart from idiosyncrasy to the drug in a few cases, a dose of salvarsan has no physiologic effect on the body temperature or intestinal elimination. Therefore we must judge that the disturbances consistently observed after its administration are due to endotoxins released from the killed organisms causing the disease. If there are many bowel movements, there is not much rise in temperature, and the converse is also true. Nausea and emesis are probably drug effects and seem to be dependent on personal idiosyncrasy.

The cure of a majority of cases of secondary syphilis may be accomplished by three intravenous doses of salvarsan. Some secondary cases have been fully sterilized of the spirochetes by one dose, as proved later by genuine reinfections; many secondary cases are cured by two doses, but to be safe three doses should be given in all cases, and if the slightest endotoxin reaction occurs after the third dose the weekly doses should be continued until it is lacking. The fact that more than three doses are frequently necessary in secondary syphilis can be explained by the probable existence of tertiary colonies which have given no symptoms. The treatment of tertiary syphilis is the same as that of the secondary stage except that here we have to repeat the doses until all of the colonies are broken up and killed. Usually from five to seven doses suffice except in cases of cerebrospinal lues, which will be considered later. Some cases of bone syphilis require more treatment, and a few cases of old tertiary ulceration of the skin are peculiarly intractable. The treatment of the fourth class of cases, tertiary infection of the cerebrospinal system, does not differ from that of other cases of syphilis except as to the greater persistence required. The final results and the degree of restoration to health will depend on the extent of damage done by the disease to nerve or brain tissue before treatment is instituted. Nothing anatomic can be restored, nor can scar tissue be removed.

Treatment of Tabes Dorsalis and Specific Paresis

Dr. Estill G. Holland, Hot Springs, Ark.: I have had six cases of tabes dorsalis and paresis which were greatly improved by intravenous injections of salvarsan.

DISCUSSION

Dr. E. G. Ballenger, Atlanta, Ga.: I have given 2,975 injections, but I have not seen secondary or other manifestations of syphilis follow in those patients who were treated before the secondary manifestations had developed.

Dr. J. K. Hall, Richmond, Va.: Syphilis ought not to be a genito-urinary disease or a disease that should come under the observation of the neurologist; it ought to be a disease for the general practitioner to discover and to treat early. In spite of the hopeful attitude of some observers, I am convinced that paresis is essentially an incurable disease.

Dr. A. J. Crowell, Charlotte, N. C.: I have used considerable salvarsanized serum in the treatment of paresis, and I think it is perfectly rational and scientific to employ this plan of treating syphilis.

Campaign Against Malaria

Dr. L. O. Howard, Washington, D. C.: The advance of civilization has increased, rather than decreased, the spread of the disease, because of the construction of ponds and stone quarries, in the still water of which the mosquito has found a favorable breeding ground. The present prophylactic measures are too general to be standardized. There are 79,000,000 acres of swamp-land country, of which 65,000,000 are in the Southern states. In addition to this vast territory of swamp acreage, there are 150,000,000 acres that need drainage.

Effects of Impounded Water in the Production of Malaria

Dr. H. R. Carter, Washington, D. C.: The great increase in impounded water in the South has resulted in a corresponding increase of mosquitoes, which, however, can be avoided if the ponds and artificial lakes can be so constructed as to be drained or be cleared of surrounding brush so as to have wind and wave action. I should suggest that all such impounded waters be placed under the control of boards of health.

Malaria Carriers and the Important Rôle They Play in Persistence and Spread of Malaria

Dr. C. C. Bass, New Orleans: Persons who are not ill and who have not been ill of malaria are the chief malaria carriers. Persons who have recovered from an attack of malaria frequently remain carriers for many months and, perhaps, years. The ideal way to deal with the situation would be to examine the blood of all persons in the house and treat the carriers. This will not be practicable in most instances, and the next best thing would be to consider all members of the household probable carriers and treat them as such. These measures carried out during the cold season are more successful because mosquitoes are not active at that time.

Malaria and Quinin

Dr. Thomas E. Wright, Monroe, La.: I have treated thirty patients with malaria of the estivo-autumnal type, with quinin intravenously. The intravenous use of quinin, in doses of 15 grains, in a dilution of from 250 to 300 c.c. of saline solution, in the hands of a careful, competent physician, is safe. The discomfort to the patient is so slight that it becomes a matter of small importance, and in this respect, when compared with quinin by mouth or hypodermically, is much to be preferred. The relief from the symptoms in malaria, so often jeopardizing life, may be attained promptly, safely and constantly by this method.

Intestinal Parasites in Adults

Dr. H. L. McNeil, Houston, Tex.: Indefinite and unexplained abdominal pains or tenderness should make one suspicious of intestinal parasites. Parasites should be suspected in all cases of chronic or subacute appendicitis. Many apparently normal men, who harbor parasites, are subject to certain indefinite complaints, diagnosed usually as indigestion, cramps, biliousness, mild diarrhea, malaria, febricula, grip, which are really symptoms of the parasitic infections. An otherwise unexplained eosinophilia is good evidence of parasitic infection, even though the parasites are not discovered at the first stool examinations; but an absence of eosinophilia does not rule out parasitic infection.

The Public Health

Dr. R. M. Cunningham, Birmingham, Ala.: All sanitary regulations among and between the states should be under the laws of the United States. Governmental direction and control is the only feasible method in which a proper regulation for the country at large can be evolved and put into execution. The federal government has jurisdiction over all matters ceded to it by the states, and all of these matters concern the common welfare. Public sentiment is necessary to procure proper laws, and to arouse public sentiment there must be education. Sanitary measures must be made political issues. So long as the people are silent, so long will the statesman fail to take the initiative. If there be a popular demand for sanitary laws, those running for office will make it one of the reasons for their election to office.

Heart Arhythmias

Dr. E. C. Thrash, Atlanta, Ga.: The principal extracardial causes of arhythmia are cortical, toxic, mechanical, reflex from pathology in other organs, and vagopathic. The treatment of arhythmias is as varied as their causes. The treatment of the ones produced by factors external to the heart itself must be based on methods which will relieve these disturbances. The neurasthenic must be relieved of his neurasthenia, the sufferer from visceral ptosis must have his condition relieved, and the mechanical disturbances which interfere with the heart's action must be diagnosed and relieved, if possible. Atropin will not only temporarily relieve these functional disorders, but the fact that it does relieve them aids one in making a diagnosis, as this drug will not relieve those of extracardial origin, but will make them worse, as it has a slightly paralytic effect on the vagus. The lesions which are intracardial must be treated by directing the attention toward the heart itself. If there are any luetic complications they should be treated. It is erroneous not to give salvarsan in this form of syphilis. Arteriosclerosis, atheroma, calcareous infiltration and toxemias play an important rôle in producing the latter lesions and they should be treated according to classic methods for handling such conditions. Digitalis is the remedy *par excellence* to restore the heart to its normal tone, and it should never be overlooked in the treatment of organic arhythmias.

Habit as an Aid to Progress.—Students of Prof. H. S. Jennings' admirable work on the "Behaviour of the Lower Organisms" will remember that his experiments have led him to the conclusion that certain Protozoa, such as *Stentor*, are able to learn by experience how to make prompt and effective responses to certain stimuli; that after they have been stimulated in the same way a number of times they make the appropriate response at once without having to go through the whole process of trial and error by which it was first attained. In other words, they are able by practice to perform a given action with less expenditure of energy. Some modification of the protoplasm must take place which renders the performance of an act the easier the oftener it has been repeated. This same is of course true in the case of the higher animals, and we express the fact most simply by saying that the animal establishes habits. From the mechanistic point of view we might say that the use of the machine renders it more perfect and better adapted for its purpose. In the present state of our knowledge I think we cannot go beyond this, but we must content ourselves with recognizing the power of profiting by experience as a fundamental property of living protoplasm.—Arthur Dendy, *Medical Journal of Australia.*

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Anatomy, Philadelphia

November, XVII, No. 1, pp. 1-160

1 Comparative Distribution of Mitochondria in Spinal Ganglion Cells of Vertebrates. E. V. Cowdry, Baltimore.
2 Anatomy of 17.8 mm. Human Embryo. F. W. Thyng, Boston.
3 Stature and Eruption of Permanent Teeth of American, German-American and Filipino Children. R. B. Bean, New Orleans.

American Journal of Public Health, Boston

November, IV, No. 11, pp. 965-1126

4 Shellfish Conservation and Sewage Disposal. G. A. Johnson, Colorado Springs, Colo.
5 Germicidal Action of Sunlight on Bacterial Spores. J. Weinzirl, Seattle, Wash.
6 *Destruction of Bacteria Through Action of Light. C. B. Bazzoni, Philadelphia.
7 Antityphoid Vaccination. J. H. Townsend, Hartford, Conn.
8 Experimental Study of Relative Efficiencies of Certain Fermentation Tubes. R. E. Lee and W. H. Fegely, Meadville, Pa.
9 *Viability of Typhoid Bacillus in Sour Cream. C. Krumwiede, Jr., and W. C. Noble, New York.
10 *Ice Cream Studies in Cincinnati. C. Bahlman, Cincinnati.
11 Swimming Pool with Return Purification System. J. F. Norton, Boston.
12 Future of Milk Industry. F. E. Fronczak, Buffalo.
13 Influence of Financial Stimulus in Improvement of City Milk Supply. H. A. Harding, Chicago.
14 Municipal Versus Contract Street Cleaning in Washington, D. C. J. W. Paxton, Washington, D. C.
15 *Typhoid Epidemic—Centralia, Washington. E. R. Kelley, Seattle, and S. Macomber, Centralia, Wash.
16 Formaldehyd Fumigation. W. Dreyfus, New York.
17 Determination of Minute Quantities of Nitrates, Particularly in Potable Waters. A. H. Gill, Boston.
18 Inhibiting Action of Colored Well Water on Bacteria and Study of Inhibiting Effect of Some Inorganic Salts. E. J. Tully, Madison, Wis.
19 Referendum for Winnebago County Tuberculosis Hospital. O. F. Bradley, Winnebago, Wis.
20 Creating a Municipal Tuberculosis Sanitarium by Referendum. F. E. Wing, Chicago.
21 Seattle Referendum Appropriating One Hundred and Twenty-Five Thousand Dollars for Municipal Sanitarium. J. Weinzirl, Seattle, Wash.
22 Account of Referendum on Proposition to Establish Tuberculosis Hospital in and for County of St. Lawrence, New York State. G. J. Nelbach, New York.
23 Examination of River Bottoms at Philadelphia. W. L. Stevenson, Philadelphia.
24 Water Softening and Decolorization. W. A. Sperry, Grand Rapids, Mich.
25 Effect of Renovation of Butter on Reichert Meissl Number and Saponification Value. F. O. Tonney and F. W. Stockton, Chicago.
26 Decolorization of Little River Water Supply in Connection with Filtration at Springfield, Mass. E. E. Lochridge, Springfield, Mass.
27 Rational Basis for Sanitation of Rivers and Harbors. G. A. Soper, New York.
28 Effect of Waters of Different Quality on Longevity of some Pathogenic Bacteria. E. J. Tully, Madison, Wis.

6. Destruction of Bacteria Through Action of Light.—Bazzoni summarizes his work as follows: The full radiation of certain sources containing waves below 250 microns in length will kill bacteria certainly and rapidly. Isolated ultraviolet rays of length 250 to 280 microns will not affect bacteria in one drop of water in a four-hour exposure. Isolated ultraviolet rays as short as 220 to 250 microns will kill only after several hours exposure even when the isolated radiation is of the same intensity as that contained in the rapidly destructive full radiation. The destructive power increases rapidly with decrease in wave length. The final conclusion is that the destructive effect of ultraviolet light is in some measure dependent on its association with longer radiations.

9. Viability of Typhoid Bacillus in Sour Cream.—The results of Krumwiede and Noble's experiments were as follows: The typhoid bacillus is gradually killed in sour cream by the acids produced, the rate of destruction being proportional to the degree of acidity and the number of typhoid bacilli present. The apparent disappearance of typhoid bacilli in sour cream in which the normal flora are present is due in part to the overgrowth of the typhoid bacillus by these bacteria and the difficulty of finding by their present methods the proportionately few typhoid bacilli remaining. With a moderate contamination, the typhoid bacilli are killed in about four days. With a heavy contamination or in which the initial multiplication has taken place, a longer time may be required. For this reason a clean cream which soured slowly would be more dangerous if contaminated, as an initial multiplication of the typhoid bacilli would occur and a longer time would be required to destroy the bacilli. Whether under ordinary conditions the overgrowth by the bacteria of the cream is a factor in the death of the typhoid bacilli cannot be determined by their present methods.

10. **Ice Cream Studies in Cincinnati.**—The bacterial content of ice cream is so high, says Bahlman, that studies of the cause are imperative. Cream is obviously the source of the great majority of bacteria found in ice cream. Proper pasteurization of the cream and enforcement of sanitary regulations, Bahlman claims, will reduce the bacterial count in ice cream. Pasteurization of the mixture just before freezing would bring about a still greater reduction. Pasteurized cream does not affect the taste of ice cream. Sanitation at the dairy must not be neglected, but proper refrigeration and transportation facilities in large cities are far from satisfactory. A perfect product at the source of supply may be teeming with bacteria by the time it reaches its destination, and under the present conditions pasteurization is the only remedy.

15. **Typhoid Epidemic.**—Certain striking features present themselves in relation to the epidemic studied by Kelley and Macomber which are sufficiently out of the ordinary to warrant calling particular attention to them. They are: (a) Coincidence of practically complete cessation of new cases at the end of average incubation period, following the installation of the hypochlorite plant. (b) Extent of vaccination proportionate to the total population and certain failures and complications of vaccination. (c) Efficiency of the Emergency Hospital care and low Emergency Hospital mortality. (d) The small number of secondary cases. (e) The resulting sanitary improvement in the town.

Archives of Diagnosis, New York

October, VII, No. 4, pp. 301-400

29 Prognosis of Chronic Myocardial Insufficiency. H. L. Elsner, Syracuse.
30 Diagnosis of Abnormalities of Myocardial Function. T. S. Hart, New York.
31 Austin Flint Murmur—Its Mode of Production, Recognition and Importance. R. Abrahams, New York.
32 *Ptyalism—Danger Signal in Renivascular Disease. H. Stern, New York.
33 Diagnosis of Cancer of Common Duct. W. F. Cheney, San Francisco.
34 *An Aid in Early Diagnosis of Pulmonary Tuberculosis. A. F. Beifeld, Chicago.
35 Roentgen Examination of Gall-Bladder. W. H. Stewart, New York.
36 Gall-Stones Ejected Through Mouth. A. R. Carman, New York.
37 Posture and Kidney Disease. S. Epstein, New York.
38 Immediate Diagnosis of Birth Canal Lacerations. W. P. Manton, Detroit.
39 Symptoms and Signs in Diagnosis of Diseases of Chest. J. Epstein, New York.
40 Diagnosis of Carcinoma. M. Kahn, New York.

32. **Ptyalism Danger Signal in Renivascular Disease.**—Profuse salivation has been encountered by Stern in three cases of renivascular disease. The increased secretion of the saliva occurred first at a period when there existed no alarming symptoms on the part of the renal apparatus, when in fact the kidneys, as evidenced by metabolic and functional tests, and the determination of urinary solids, were performing their work in the same manner as months previously. It was thus clear that the ptyalism in these cases could not have been caused by a renal insufficiency, and that the blood-vessel disease itself should be held responsible for the salivary increase.

Stern says that the excessive production of saliva may last for from two to three days, or even from eight to ten days, and may then cease entirely for one or two weeks and reappear in a lesser degree (mostly); or the secretion may soon become less profuse, but continues in larger than normal amounts. Paralytic phenomena were not present in any one of the author's three cases prior to the establishment of ptyalism, but they made their appearance in two of them within a few months after the hypersecretion had supervened. In the third case very frequent (often after each meal or every drink of water) projectile vomiting, and other reflex manifestations of cerebral involvement set in soon after the advent of ptyalism. Inasmuch as such definite aggravation of the patient's condition was in none of the cases noted *prior to the onset of the ptyalism* Stern feels justified in denominating the appearance of the latter a danger signal in the course of the vascular deterioration process. A relationship between hypersalivation and hyperhydrosis did not exist in any case. While one of the patients inclined to perspire freely, the secretion of his sweat glands was neither profuse, nor was there any direct or inverse demonstrable analogy between the two secretions. The activity of the sweat glands of the remaining two patients seemed entirely normal.

34. **Early Diagnosis of Tuberculosis.**—As an aid in the eliciting of râles over the apex Beifeld (and others to whom he has communicated the finding) has had success with what he terms the whispered-voice method. It consists in having the patient whisper in an emphatic way, repeating "One, two, three" a number of times, following which he is instructed to inspire deeply. It is a frequent observation that when other methods fail, this procedure is successful in bringing out the significant apical râles.

Arkansas State Medical Society Journal, Little Rock

November, XI, No. 6, pp. 133-153

41 Spinal Analgesia. Report of Cases. R. A. Hilton, El Dorado
42 Nasal Septum. R. Caldwell, Little Rock.
43 Metastatic Infections. B. D. Luck, Pine Bluff.
44 Injuries to Skull and Brain. Report of Cases. W. A. Snodgrass, Little Rock.

Boston Medical and Surgical Journal

November 26, CLXXI, No. 22, pp. 803-838

45 *Laboratory in the Study and Treatment of Crime. V. V. Anderson, Boston.
46 *Some Conditions that Influence the Mortality after Prostatectomy. A. L. Chute, Boston.
47 *Magnesium Sulphate in Purulent Cerebrospinal Streptococcic Meningitis. W. S. Bryant, New York.
48 Modern Treatment of Amebic Dysentery. E. F. Haines, Fort Leavenworth, Kan.
49 Intestinal Putrefaction with Convulsions. W. L. Thompson, New York.
50 Two Unusual Traumatic Cases. F. H. Lahey, Boston.
51 Case of Rotary Dislocation of Atlas. J. J. Morton, Jr., Boston.
52 Shaft of Radius as Pin Cushion. H. F. R. Watts, Dorchester.

45. **Laboratory in the Study and Treatment of Crime.**—Three hundred and fifty cases from the first and second criminal sessions of the municipal courts, as well as a few from the domestic relations courts of Boston are analyzed by Anderson. There were 140 men and 210 women. Of the men offenders, only 16 per cent. were mental defectives, while 35 per cent., or more than twice as many, were psychopaths. Of 62 cases men arrested for drunkenness 12.9 per cent. were mental defectives, while 40.3 per cent. were constitutional psychopaths. Of 21 individuals arrested for non-support, 9.5 per cent. were mental defectives, while 66⅔ per cent. were constitutional psychopaths.

Among the female offenders there were 40.95 per cent. mental defectives. There were 17.14 per cent. constitutional psychopaths among the females. Of the women arrested there were 105 cases of drunkenness. Of these, 43.8 per cent. were mental defectives, and 27.62 per cent. constitutional psychopaths. A study of those women arrested for offences against chastity shows that 48 per cent. were mental defectives, 28 per cent. were subnormal, while only 3.84 per cent. were psychopaths. In general Anderson's studies bear out the conclusions of other investigators in regard to women offenders, that they are differentiated from non-criminals by a lack of intellectual development; that mental deficiency is the problem here. In regard to criminals as a whole, however, they contradict certain reports, for the psychopath is almost as frequent as the defective and among men recidivists is of larger magnitude.

Anderson concludes that there is a type of individual passing through the courts who form a group of as serious proportions as the feeble-minded; who furnish as much if not more trouble to the social worker and probation officer than the defective, often suspected by the layman of being insane and diagnosed occasionally by experts as suffering from psychoses, or as mental defectives, defective delinquents, emotional defectives, moral imbeciles, and what not. These individuals when studied intensively by exact methods show no real defect in the intellectual field; they give no evidence of insanity, but seem to have certain anomalies of character, a certain lack of personality—adjustments, unstable, neurotic individuals, whose adaptation is inadequate and inefficient. They easily become disordered under the influence of emotion, alcohol, etc.

46. **Some Conditions that Influence the Mortality After Prostatectomy.**—The high mortality following prostatectomy, Chute says, is unnecessary and is to be avoided in two ways: First, by getting kidneys that are not doing their work into a condition in which they are acting efficiently; second, by avoiding injury to embarrassed or susceptible kidneys at the time of operation.

47. **Magnesium Sulphate in Cerebrospinal Meningitis.**—The diagnosis in Bryant's case—cerebrospinal meningitis—was established by symptoms and lumbar puncture. A decompression operation gave immediate relief from intracranial pressure. Toxemia was combated by magnesium sulphate, water and drainage. Cure of the cerebrospinal meningitis followed in a few days. Infection of the cranial wound followed contamination of the dressings. Result, a recurrence of toxemia together with encephalitis, with death on the 190 day from time of decompression operation. Cause of death, encephalitis and toxemia, not cerebrospinal meningitis.

Bulletin of Johns Hopkins Hospital, Baltimore

November, XXV, No. 285, pp. 323-350

53 *Experimental Production of Amebic Dysentery by Direct Inoculation into Cecum. A. W. Sellards and W. A. Baetjer, Baltimore.
54 Analysis of Case of Psychasthenia. H. Flournoy, Baltimore.
55 *Fibrinolysis in Chronic Hepatic Insufficiency. E. W. Goodpasture, Baltimore.
56 High Incision in Cesarean Section. W. L. Thompson, New York.
57 *Nitrogen Metabolism Before and After Splenectomy in Case of Pernicious Anemia. G. R. Minot, Baltimore.

53. **Production of Amebic Dysentery in Direct Inoculation Into Cecum.**—The inoculation of kittens per rectum, or the feeding of dysenteric stools rich in ameba was used by Sellards and Baetjer for the production of dysentery with widely varying degrees of success, but, in general, about 50 per cent. of infections was obtained. It has not been possible by either of these methods to propagate a strain of pathogenic ameba beyond a very limited number of passages. Inoculation of eight strains of dysentery, some of which were distinctly atypical cases, directly into the cecum, in ten kittens produced an infection in all instances. In some of the subinoculations considerable difficulty was experienced with bacterial septicemia.

Some of the factors bearing on the high rate of amebic infection following intracecal inoculations are as follows: 1. Absence of tendency to expulsion of injected material. 2. Optimum utilization of infective material and the avoidance in a large measure, of deleterious diluting agents. 3. Precision of the site of injection in the bowel. Definite evidence was obtained that the ameba are able to injure and penetrate the healthy mucosa. Unrestricted growth of bacteria in the intestine seems to be unfavorable to the entameba. A marked suppression of bacterial growth in the amebic lesion appears to be necessary for the best development of the pathogenic ameba. Animal inoculation by intracecal injection has been of assistance in the (1) propagation of a strain of ameba through a series of animals for a period of several months; (2) determination of the etiology of some obscure diarrheas; (3) study of the morphology of some atypical ameba of low virulence.

55. **Fibrinolysis in Chronic Hepatic Insufficiency.**—Specimens of blood from four cases of atrophic hepatic cirrhosis examined by Goodpasture possessed the property of completely digesting their clot within a few hours, at body temperature. Normal blood will not digest its clot for days or weeks. Dissolution of clot in the blood of cirrhosis cases, Goodpasture thinks, is due to an enzyme. Its activity is destroyed by heat, inhibited by normal serum and diminished in old plasma. The fibrinogen content of the blood in each case has been below normal. Hydremia was a constant feature. One patient exhibited a low phenoltetrachlorphthalein output. Goodpasture says that digestion of clots in vivo explains in part the hemorrhagic tendency present in these patients.

57. **Nitrogen in Case of Pernicious Anemia.**—In a case of pernicious anemia showing no improvement for three months, splenectomy was performed, after which the patient's general condition and blood-picture improved. Coincident with this improvement the urobilinogen disappeared from the urine, a more favorable nitrogen balance occurred, and a rise in per cent. of urea nitrogen, which previously had been below normal.

Colorado Medicine, Denver

November, XI, No. 11, pp. 403-444

58 Treatment of Weak and Flat Feet. G. B. Packard, Denver.
59 Chronic Polyarthritis in Children. S. F. Jones, Denver.
60 Chronic Intestinal Indigestion in Children; Its Rôle in Production of Epilepsy. J. W. Amesse, Denver.
61 Contagious Diseases in Denver During 1913. C. E. Low, Denver.
62 Inoculation Against Typhoid in National Guard of Colorado. W. A. Jolley, Boulder.
63 Value of Organization in Medical Profession. I. Knott, Montrose.
64 Closure of Vesicovaginal Fistula which had Followed Hysterectomy. C. M. Stewart, Glenwood Springs.
65 Problems of Teaching Dispensary. J. Shapiro, Boulder.

Florida Medical Association Journal, Jacksonville

November, I, No. 5, pp. 129-160

66 Surgical and Conservative Treatment of Joint Tuberculosis. R. Duffy, Tampa.
67 Diagnosis and Treatment of Pulmonary Tuberculosis. R. H. McGinnis, Jacksonville.
68 Renal Tuberculosis. J. K. Simpson, Jacksonville.
69 Laboratory Diagnosis of Tuberculosis. H. Hanson, Jacksonville.

Indiana State Medical Association Journal, Fort Wayne

November, VII, No. 11, pp. 507-550

70 Goiter: Differential Diagnosis. R. B. Wetherill, Lafayette.
71 Pathology of Goiter. L. T. Rawles, Fort Wayne.
72 *Goiter: Selection and Preparation of Surgical Risks. G. K. Throckmorton, Lafayette.
73 Goiter; Surgical Treatment. H. H. Martin, Laporte.

72. Abstracted in THE JOURNAL, Oct. 24, 1914, p. 1499.

Journal of Abnormal Psychology, Boston

October-November, IX, No. 4, pp. 217-295

74 *Mental Tests of Dementia. B. Hart and C. Spearman, London.
75 *Criticism of Psychoanalysis. J. V. Haberman, New York.

74. **Mental Tests of Dementia.**—The experimental results obtained by Hart and Spearman, they say, are incompatible with the current view that dementia consists in large "defects," "gaps," "hyperfunctions" or "ataxias" in mental power, such as "disturbed association," "faulty judgment," "weak power of conception," "poverty of ideas," "loss of memory," etc. The authors believe that the method of mental tests appears to be already capable of accurately determining any person's general level of intellectual power. But before accurately measuring the impairment (especially in slight cases) one should know how great this power was in health.

75. **Criticism of Psychanalysis.**—Haberman sums up his criticism of the so-called Freudian psychanalysis as follows: Let us have some carefully and scientifically worked-out studies given to us—not "statements" erroneously called "studies" which go on without the slightest attempt to substantiate the principles employed. Let us have some wholesome and conservative investigation of such mechanisms as Verdrängung, of the carrying over of "affect" experienced in association with an incident, on concepts not originally associated with such "affect" (Hellpach makes an attempt to explain this mechanism without Freud's aid of the "unconscious"). Or again let us see to what degree personality may be laid bare by judicious anamnestic probing,

"anamnestic analysis," Haberman has called it to differentiate it from the sexuo-analysis of the Freudians, incorrectly termed psychanalysis. This is a type of inquiry always essayed to some extent by psychiatrists and neurologists, but now more carefully and thoroughly undertaken because of the renewed interest in the psyche and the psychic—a probing without the use of symbolism or interpretation or translation. Let the psychanalyst in such a procedure show how much of the past makes up mind-tendencies of the present, to what degree past "affects" can produce negative influence in the present, to what degree the sexual (as found—not interpreted) plays a part, whether the incident causing such "affects" can drop out of memory, be forgotten, and the "affect" still live on (Ranschburg, for instance, one of the foremost authorities on memory studies to-day, denies that it can), how symptoms may be explained without symbolism (for surely even the Freudist will admit that some can, by suggestion, for instance, and imitation), or if he needs his symbolism, first give some adequate proof of it, or show how it may be scientifically employed.

Journal of Infectious Diseases, Chicago

November, XV, No. 5, pp. 417-614

76 Metabolism of Saprophytic Human Tubercle Bacilli in Plain, Dextrose, Mannite, and Glycerin Broths. A. I. Kendall, A. A. Day and A. W. Walker, Chicago.
77 Metabolism of Certain Rapidly Growing Human Tubercle Bacilli. I. In Broth Free from Lipoids and Fatty Substances. A. I. Kendall, A. A. Day and A. W. Walker, Chicago.
78 Id. II. In Modified Uschinsky Medium. A. I. Kendall, A. A. Day and A. W. Walker, Chicago.
79 *Id. III. In Media with Inorganic Salts as Sources of Nitrogen. A. I. Kendall, A. A. Day and A. W. Walker, Chicago.
80 *Metabolism of Lepra Bacillus, Grass Bacillus and Smegma Bacillus in Plain, Dextrose, Mannite and Glycerin Broths. A. I. Kendall, A. A. Day and A. W. Walker, Chicago.
81 Occurrence of Soluble Lipase in Broth Cultures of Tubercle Bacilli and Other Acid-Fast Bacteria. A. I. Kendall, A. W. Walker and A. A. Day, Chicago.
82 Relative Activity of Soluble Lipase and Lipase Liberated During Autolysis of Certain Rapidly Growing Tubercle Bacilli. A. I. Kendall, A. W. Walker and A. A. Day, Chicago.
83 Specificity and Thermostability of Lipase Developed During Growth of Rapidly Growing Tubercle Bacillus in Media of Varied Composition. A. I. Kendall, A. W. Walker and A. A. Day, Chicago.
84 Comparison of Curves of Lipolytic Activity and Proteolysis of Certain Rapidly Growing Human Tubercle Bacilli in Media of Varied Composition. A. I. Kendall, A. W. Walker and A. A. Day, Chicago.
85 Comparison of Curves of Lipolytic Activity and Proteolysis of Certain Acid-Fast Bacilli in Nutrient Broths. A. I. Kendall, A. W. Walker and A. A. Day, Chicago.
86 *Effect of Cholesterol on Phagocytosis. K. Dewey and F. Nuzum, Chicago.
87 Formation of Chlamydospores in Sporothrix Schenckii. D. J. Davis, Chicago.
88 *Experimental Study of Influence of Iodin and Iodids on Absorption of Granulation Tissue and Fat-Free Tubercle Bacilli. E. F. Hirsch, Chicago.
89 Antigenic Properties of Glycoproteins. C. H. Elliott, Chicago.
90 *Therapeutic Value of Copper and Its Distribution in Tuberculous Organism. H. J. Corper, Chicago.
91 *Relation Between Allergic Intracutaneous Reaction and Symptoms of Anaphylaxis. G. L. Meigs, Chicago.
92 Protein Poison of Tonsil. W. H. Burmeister, Chicago.
93 Histologic Differentiation by Means of Anilin Stains in Association with Regressive Mordanting, with Special Reference to Elastic Tissue. H. F. Harris, Atlanta, Ga.
94 *Effect of Gentian Violet on Bacillus Tetani, Tetanus Toxin and Certain Laboratory Animals. I. C. Hall and L. B. Taber, Berkeley, Cal.
95 Production of Acid by Bacillus Coli Group. W. W. Browne, Providence, R. I.

79. Metabolism of Tubercle Bacilli in Simple Mediums.—A rapidly growing strain of human tubercle bacilli (597) was grown by the authors in a medium of known and very simple composition, consisting essentially of diammonium-hydrogen-phosphate, as a combined source of nitrogen and phosphorus, and dextrose, mannite, and glycerin, respectively, as sources of carbon. At the end of two weeks, 4.2 mg. of nitrogen, that is to say, 10 per cent. of the total nitrogen of the uninoculated medium, has been so changed by the growth of this organism that it cannot be recovered as ammonia. This loss of ammonia is most plausibly explained on the assumption that it has been built up into the bodies of the newly developed bacteria.

At the end of four weeks, between 40 and 50 per cent. of this lost nitrogen has reappeared in the clear medium underlying the pellicle of the tubercle bacilli in such a form that it can again be determined as ammonia. The period during which the disappearance of nitrogen from the culture fluid is the greatest corresponds with the period of maximum vegetative activity in the culture. Coincidently with the reappearance of this nitrogen, which can be detected as ammonia in solution, there are evidences of a cessation of vegetative activity. This strongly suggests that the reappearance of this ammonia is associated with a certain amount of autolysis of the bodies of the bacteria.

80. Metabolism of Lepra, Grass and Smegma Bacilli.—The authors found that the metabolism of the smegma and grass bacilli resembles that of the rapidly-growing, human tubercle bacilli, described previously, in two important particulars; neither dextrose, mannite, nor glycerin, exhibits any appreciable sparing action for the protein constituents of the broth, the amounts of ammonia produced being practically the same in these media as in plain broth; and their cultures present a gradual increase in proteolysis to a maximum which is followed by a clearly-defined recession of the metabolism indicated by a gradual decrease in the ammonia content. The lepra bacillus does not present this metabolic phenomenon. This would suggest that this bacillus was entirely distinct in its cultural relationships from the grass and smegma bacilli, which follow more closely the metabolism of the tubercle bacillus.

86. Effect of Cholesterol on Phagocytosis.—It appears from Dewey and Nuzum's experiments that cholesterol in colloidal suspension, injected into guinea-pigs and rabbits, has a depressing effect on phagocytosis. They believe that this action is probably chiefly on the leukocytes; for the opsonic index of normal serum with the washed leukocytes of an animal injected with cholesterol is lower than that of the same serum with washed normal leukocytes, and the index of the serum containing cholesterol with the washed leukocytes of the same blood shows a reduction in phagocytosis more than twice as great as that of such serum with washed normal leukocytes. The fall of the total phagocytic index, that is, of the serum of the animal injected with cholesterol acting on its own washed leukocytes, is 65 per cent. after one hour and 43 per cent. seventy-two hours after one small dose and 62 per cent. twenty-four hours after one large dose of cholesterol.

The chief difference in the results from injections of small and large amounts of cholesterol and of doses of higher and lower concentration seems to be, as far as the range of these experiments indicates, a more marked immediate effect from the large dose and from that of higher concentration. This inhibitory action of cholesterol, the authors suggests, is perhaps due to the presence of free cholesterol in the blood. Simultaneous injections of immunizing doses of streptococci with cholesterol result in an opsonic curve which is almost identical with that of the serum of an animal injected only with cholesterol. This apparent neutralizing effect of cholesterol on the formation of antibodies is marked when cholesterol is injected twenty-four hours after the animal has received the immunizing dose.

88. Effect of Iodin on Absorption.—The use of iodin and iodids in facilitating the absorption of necrotic material and organization of tuberculous and other granulation tissues, Hirsch says, has no experimental proof. The daily administration of potassium iodid does not hasten the removal of foreign substances, like tubercle bacilli, by stimulating the phagocytic properties of the endothelial cells. The presence of free iodin in such areas may influence the process only by favoring an inflammatory reaction, if the amount of iodin is sufficient, but has no effect in promoting absorption. Iodized fat-free tubercle bacilli are absorbed no faster than are the non-iodized.

90. Copper in Tuberculosis.—Corper's experiments showed that copper in simple salt form (sulphate, acetate, oleate and copper amino-acid mixture prepared from hydrolyzed egg albumin), injected intramuscularly into normal and tuberculous guinea-pigs in total amounts from 0.75 mg. up to about 19.0 mg. for about two to one hundred days, enters the animal organism and is found mainly and in largest amounts in the liver, in small amounts in the kidneys, in traces in the spleen, lungs and blood, and not at all in the tuberculous lymph-glands and pus. After cessation of injections the copper slowly but gradually decreases in amount in the liver.

Copper, in simple salt form, injected intramuscularly in guinea-pigs, in amounts varying from 2.7 to 22.1 mg. during a period of thirteen to thirty-four days, previous to (nineteen days), coincident with (two days before), or after (eleven days) infection with tubercle bacilli, has appreciable effect on the progress of the tuberculosis, as indicated by the lesions present after death.

Copper, in simple salt form fed to rabbits in amounts up to 1,380 mg. of copper, during a period of ninety-seven days, and injected (copper sulphate and copper amino-acids) intramuscularly into rabbits, in amounts up to 55.1 mg. of copper, during periods of ninety days, enters the blood and is found mainly and in largest amounts in the liver, in small amounts in the kidneys, in traces in the lungs and blood and not at all in either the tuberculous or normal eyes. Copper, in the form of copper sulphate, fed to rabbits in amounts of 1 to 2 c.c. of a 1 per cent. solution daily for up to one hundred days, begun five days before infection, and copper in simple salt form injected intramuscularly into rabbits in amounts of 12 to 42.9 mg. copper, for thirty-seven days, begun on the eleventh day after the infection, has no appreciable effect on the course of tuberculosis of the eye as indicated by the development of the disease in the eye.

Colloidal copper, prepared electrolytically by Bredig's method injected intravenously into normal and tuberculous rabbits in amounts totalling 9.6 mg. from four to twelve days, is found mainly and in largest amounts in the liver, in smaller amounts in the kidneys, in traces in the lungs and not in the normal or in the tuberculous eyes. Copper, in the form of copper amino-acid mixture, does not differ greatly in its systemic (tested in mice with the lethal dose intraperitoneally and intramuscularly, about 0.05 to 0.1 mg. copper per mouse of 10 gm.) and local (tested intracutaneously in guinea-pigs) toxicity from that of copper sulphate when equal copper contents were compared. Locally, however, a difference existed in the fact that the copper amino-acid mixture produced a hemorrhagic necrotic lesion, whereas the copper sulphate produced a single necrosis. The local nonnecrotizing concentration proved to be 0.01 per cent. copper, while 0.001 per cent. copper still produced a slight duration.

Copper, in the form of copper oleate (50 per cent.) in lanolin by inunction, and copper amino-acid mixture applied to the skins of guinea-pigs, is absorbed, but only to a slight extent and with uncertainty, as shown by the presence of small amounts of copper in the liver.

91. **Relation of Cutaneous Allergy to Anaphylaxis.**—On the ground of the conception that the anaphylactic reactions are caused by substances in close relation to the parenteral splitting of protein, Meigs' experiments speak in favor of the hypothesis that the intracutaneous reaction of the sensitized animal is not caused by the same split-products which lead to the general symptoms of anaphylaxis on the reinjection of the allergen into the blood-stream.

94. **Toxicity and Antitetanic Action of Gentian Violet.**—According to Hall and Taber gentian violet distinctly inhibits the growth of the tetanus bacillus when 1 part saturated solution is added to 10,000 of dextrose agar. In dextrose broth, however, exposure for twenty-four hours at 37 C., at this concentration, has no perceptible effect on subcultures; the cultures failed from broth containing 1 part in 100. The organisms are not destroyed, however, as can be shown by animal inoculations. One part saturated solution in ten of broth destroys the virulence of a toxic culture. At this concentration more than 99 per cent. of the toxin is destroyed by contact at 37 C. for twenty-four hours. One part in 100 has no perceptible effect. The necessity of using more than 1 per cent. saturated solution for devitalization precludes the employment of gentian violet for the practical purpose attempted through excessive soiling of laboratory ware. Within the limits tested, the toxin appears to be destroyed under practically the same conditions as the spores. Guinea-pigs and rabbits withstand considerable injections of gentian violet in 0.85 per cent. NaCl. Distilled water solutions appear to be more toxic than those in salt solution and subcutaneous injections less than intravenous injections.

Lancet-Clinic, Cincinnati

November 21, CXII, No. 21, pp. 549-574

96 *Public and Profession: A Criticism. D. Hecht, Chicago.
97 Purpura Rheumatica Associated with Genito-Urinary Lesions A. W. Nelson, Cincinnati.
98 Surgical Authority. F. Fee, Cincinnati.

96. Also published in the *Medical Record*, Nov. 21, 1914, and abstracted in THE JOURNAL, November 21, p. 1877.

Laryngoscope, St. Louis

October, XXIV, No. 10, pp. 837-900

99 Deaf Child—Plea for Cooperation. M. A. Goldstein, St. Louis.
100 Anatomy of Tympanic Cavity. R. Butler, Philadelphia.
101 Vaccine Therapy in Ear Disease. V. Dabney, Washington, D. C.
102 Tuberculosis of Parotid Gland. T. E. Carmody, Denver.
103 Affections of Lingual Tonsil and Their Treatment. C. C. Biedert, Philadelphia.
104 *An Uncommon Case of Nasal Hemorrhage. J. A. Thompson, Cincinnati.

104. **Nasal Hemorrhage.**—There were two unusual features in Thompson's case. The right inferior turbinate body was all angiomatous tissue and when it started to bleed the hemorrhage could be controlled only by the complete removal of the tumor. The second unusual feature was the method of cure, a submucous resection. The septal cartilage was found to be softened and it was believed that the condition of the cartilage prevented a cure of the inflammation in the overlying mucosa.

Medical Record. New York

November 28, LXXXVI, No. 22, pp. 909-950

105 Radium Beta Rays. R. Abbe, New York.
106 *Imbedded Radium Tubes in Treatment of Cancer. W. J. Morton, New York
107 Microscopic Traumatic Lesions of Mucosa Found in Some Cases of Appendicitis. C. Savini, New York.
108 Case of Myxedema Allied to Infective Exhaustive Group. E. F. Leonard, Chicago.
109 Annular, Serpiginous, Bullous Eruption Complicating Vaccination. C. A. Simpson, Washington, D. C.
110 Case of Acute Myelogenous Leukemia. W. B. Stone and A. S. Fay, Schenectady.
111 The Load Our Students Bear. W. F. Waugh, Chicago.
112 Case of Retroperitoneal and Extensive Subcutaneous Emphysema Following Intratracheal Anesthesia, with Recovery. S. D. Ehrlich, New York.

106. **Imbedded Radium Tubes in Treatment of Cancer.**—Morton makes a further report of a case of a spindle cell sarcoma of the humerus remaining cured nine years after radium treatment. He also reports a case of primary carcinoma of the breast of the size of a large egg into which he inserted a tube containing 10 milligrams of pure radium bromid of an activity, of 1,800,000. The tube was left in place sixteen hours. A severe radium necrosis ensued, very slow to heal. Some time later on it was thought best on account of the slow healing of the wound simply to remove surgically the mammary gland involved. The patient at this date (1914) seven years later has never shown any signs of recurrence of the disease and remains in perfect health.

New Jersey Medical Society Journal, Orange

November, XI, No. 11, pp. 545-596

113 Hospitals and Their Superintendents. G. K. Dickinson, Jersey City.
114 Hospital and Physician. E. J. Ill, Newark.
115 Efficiency of Hospital Service. E. Marvel, Atlantic City.
116 Hospital and Its Nurses. J. C. McCoy, Paterson.
117 *Standing-Order Evil in Hospitals from Surgical Viewpoint. F. H. Glazebrook, Morristown.

117. **Standing-Order Evil in Hospitals.**—The standing order is regarded by Glazebrook as a decided evil in the hospital management of operative cases, and in his opinion should be eliminated. He advises that the administration of alkaloid drugs especially morphin and atropin, commonly used in connection with operative cases, should be more

cautiously administered, and never given unless the indication for their use is positive, whereas the routine preanesthetic administration of morphin and atropin is, he says, an unsound and unscientific practice, the advantages claimed for the method not being enough to offset the risk involved.

New York Medical Journal

November 28, C, No. 22, pp. 1049-1096

118 Phlegmons of Upper Respiratory Tract. Report of Cases. J. O. Roe, Rochester.
119 Intestinal Stasis. B. Robinson, New York.
120 Convulsions During Pertussis. L. Fischer, New York.
121 Sciatic Pains. A. M. Forbes, Montreal.
122 Epithelioma Varium. W. P. Cunningham, New York.
123 *Parageusia and Its Treatment. T. F. Reilly, New York.
124 Voice Fatigue in Singers and Speakers. I. W. Voorhees, New York.
125 Post Partum Hemorrhage and Treatment. J. Gardiner, Toledo, O.
126 A Stamp Bracelet Aid to Auscultatory Blood-Pressure Test. F. A. Faught, Philadelphia.
127 Determination of Exceptional Development in Children. M. P. E. Groszmann, Plainfield, N. J.
128 Garcia Fernandez. W. B. Jennings, Scarsdale.

123. **Parageusia and Its Treatment.**—As a result of a year's close questioning of patients on the subject, Reilly is convinced that persistent bad taste in the mouth is a symptom of much importance; that it is always an expression of a serious toxemia, and is frequently of great service in the early diagnosis of disease. In the early stages of chronic interstitial nephritis the patient complains of the bad taste only on arising in the morning and says that it disappears after breakfast. As the disease advances, often, but not always, it reappears later in the day, in some cases, particularly of the cardiorenal type, it reappears after exercise or at the close of the day. In one case, the ingestion of a meat meal caused a taste described as rubberlike to appear regularly two hours after eating and to persist for about two hours. In general, the prognosis seems to be worse the more constantly the taste is present.

In many instances bad taste was the only symptom the patient complained of, and Reilly suggests as a working rule that when any one, particularly a person of 45 years or upward, complains of persistent bad taste, a blood-pressure examination be made at once. This sign often precedes the appearance of other symptoms by a month or more. Next in frequency Reilly found this complaint associated with gallstones and cholecystitis. During an attack of cholelithiasis a large number of patients complain of bad taste, which is generally ascribed to coincident gastric disturbance or to the morphin given to relieve pain. In most instances, the taste is described as bitter, like gall. During the diminution of the attack, namely, after the colic has subsided while yet the pain and soreness remain, the taste is sometimes described as dry, but quite often the "gall" taste remains. In a few cases, the taste was described as being like musty eggs.

New York State Journal of Medicine

November, XIV, No. 11, pp. 513-553

129 Correction of Nasal Deformities by Mechanical Replacement and Transplantation of Bone. W. W. Carter, New York.
130 Recent Developments in Otology. T. J. Harris, New York.
131 Clinical Irregularities of Heart Beat. A. Lambert, New York.
132 Various Methods of Blood Transfusion and Its Value. J. A. Hartwell, New York.
133 Removal of Facial Blemishes and Epitheliomata. E. W. Ruggles, Rochester.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Brain, London

September, XXXVII, No. 1, pp. 1-198

1 *Clinical Aspects of Syphilis of Nervous System in Light of Wassermann Reaction and Treatment with Neosalvarsan. H. Head and E. G. Fearnsides.
2 *Comparison of Lesions of Syphilis and "Parasyphilis" Together with Evidence in Favor of Identity of these Two Conditions. J. McIntosh and P. Fildes.

1. **Syphilis in Light of Wassermann Reaction and Treatment with Neosalvarsan.**—All manifestations of syphilis of the central nervous system, according to Head and Fearnsides, are consequent on the direct activity of the *Spirochæta pallida*. The clinical picture evoked depends on the situation of this activity and on the susceptibility of the tissues. When the lesion lies mainly within the essential structures of the central nervous system, both neuroglia and the nerve elements participate in the tissue reaction. This results in the death and degeneration of certain systems of cells and fibers; to these secondary consequences may be due the greater part of the clinical manifestations. The more closely clinical signs and symptoms point to pathologic changes in the meninges and vessels, the more certainly will the disease yield to adequate treatment. On the other hand, the more nearly the clinical manifestations point to one or more foci of syphilitic activity within the parenchymatous tissue of the central nervous system, the less will they yield to the present methods of antisyphilitic treatment.

In syphilis meningovascularis the character of the Wassermann reaction in the cerebrospinal fluid depends on whether the spinal or basal meninges are affected. Should clinical evidence point to affection of the contents of the spinal canal, and occasionally when the basal meninges alone appear to be affected, the reaction is positive in the cerebrospinal fluid. When, however, the disease seems to be limited to the intracranial contents, the reaction in the cerebrospinal fluid tends to be negative or weakly positive. In cases of syphilis centralis, such as dementia paralytica, tabes dorsalis, muscular atrophy and primary optic atrophy, the Wassermann reaction in the cerebrospinal fluid is strongly positive so long as the disease is active. When, however, it has come to an end, leaving behind it a greater or less amount of irreparable degeneration, the Wassermann reaction may diminish in strength or even become negative in the cerebrospinal fluid. Under treatment with salvarsan or neosalvarsan, the Wassermann reaction in cases of meningovascular syphilis, if at first positive, will usually become negative in the cerebrospinal fluid within six months. On the other hand, the more the clinical manifestations point to syphilis centralis the less will they yield to any of the present forms of antisyphilitic treatment. No complete diagnosis or prognosis can be made until the patient has been under observation and treatment for at least six months, and the cerebrospinal fluid has been examined systematically from time to time.

Whatever the situation and nature of the lesion which is responsible for the clinical manifestations, some secondary degeneration must almost certainly result. Many of the signs and symptoms in cases of syphilitic disease of the central nervous system are therefore not amenable to any form of antisyphilitic treatment. It is, therefore, most important to make the diagnosis of syphilis early in the disease of the central nervous system, so that treatment may be employed before the advent of these secondary changes.

2. **Comparison of Lesions of Syphilis and "Parasyphilis."**—The progressive character of "parasyphilitic" lesions, McIntosh and Fildes claim, is due to a continuation of the syphilitic process in spite of treatment, and not to a progressive primary degeneration of the neurons. The degeneration passively extends to the limits of the neuron, but does not actively spread to other neurons. Treatment is ineffective in resolving the inflammation because drugs in the bloodstream are unable to pass from the capillaries into the nervous substance in order to destroy the spirochetes. If by some method salvarsan succeeds in penetrating into the brain or cord, it produces such toxic symptoms as make its use impossible.

British Medical Journal, London

November 14, II, No. 2811, pp. 821-864

3 Borderland of Disease. G. Rankin.
4 *Present Knowledge of Thyroid. M. Mamourian.
5 Nicolle and Blaizot's Vaccine in Treatment of Gonorrhea. R. Donaldson.
6 *Blood-Platelets in Treatment of Disease. L. Dimond.
7 Insects and War: Ticks. A. E. Shipley.
8 Epidemic Poliomyelitis. A. A. Pim.
9 Treatment of Certain Cases of Appendix Abscess. C. M. Page.
10 Some Practical Considerations in Diagnosis and Treatment of Abscess of Cerebellum. W. Milligan.

11 Treatment of Vesical Papillomata by High-Frequency Current. A. Fullerton.
12 Operative Treatment of Abdominal Aneurysm. W. I. de Courcy Wheeler.

4. **Present Knowledge of Thyroid.**—A 4-year-old typical cretin was treated with thyroid extract for about three years without intermission. He came under Mamourian's care in January, 1910, and he continued the treatment for over six months, prescribing 20 grains of the dry extract per day. Neither his physical nor mental condition underwent any appreciable change. Mamourian then decided to try grafting. He had a sheep killed in the hospital while the patient was being anesthetized, removed the thyroid, placed it in hot saline and after incising it in several places planted it into the child's omentum, which was scarified with a needle. The patient made wonderful headway. Four years after the operation the boy has entirely lost his repulsive countenance, and looks pleasant and intelligent. He can read and write, tell the time and recognize coinage. He has grown to the extent of 10 inches in four years. Since the operation he has very occasionally had a 5-grain tablet owing to a stutter which he develops at times, and which, according to the observation of the boy's mother, completely disappears when a small dose of extract is given.

6. **Blood-Platelets in Treatment of Disease.**—Though good results are obtained from small doses of platelets and their plasma, such as from 1 to 5 c.c., Dimond has in particular cases, according to the indications, by means of 20 c.c. Record syringes, administered as much as 30 to 40 c.c. directly into the connective tissues under the skin between the shoulder blades. During an experience of many hundreds of injections, varying from 1 c.c. to 40 c.c., he has never yet seen any untoward result apart from a slight reddening of the skin for a few centimeters around the puncture, which clears up in from twenty-four to thirty-six hours. The patients have never complained of any pain as an immediate or after result of the injections, and in the majority of cases the hyperemia of the skin is simply accompanied by a slight sensation of itching.

When vaccines are administered either with the platelets or after sensitization by means of the platelets and their plasma, more definite local signs are the result, but never so marked or so intense as when the vaccine alone is injected. Having treated with platelets a large number of acute and chronic pulmonary conditions, as well as numerous cases of the secondary infection in phthisis, Dimond has found that for the organisms noted below the most suitable time for isolation of the platelets is, as a rule, as follows: *Diplococcus pneumoniae*, platelets withdrawn fifth day after injection. *Micrococcus catarrhalis*, platelets withdrawn third day after injection. Friedlander's bacillus platelets, withdrawn eighth day after injection. *Bacillus influenzae*, platelets withdrawn second day after injection. *Streptococcus pyogenes*, platelets withdrawn third day after injection. *Bacillus septus*, platelets withdrawn sixth day after injection. *Bacillus pertussis*, platelets withdrawn third day after injection. Regular estimations of the opsonic index in certain of these cases have shown that when the platelets are withdrawn after the above interval following the vaccine injection the best immunizing response is obtained.

Edinburgh Medical Journal

November, XIII, No. 5, pp. 361-440

13 *Four Cases of Tuberculosis Treated with Béraneck's Tuberculin. R. A. Fleming.
14 Passing of Vesalius. G. M. Cullen.
15 Simple Form of Dressing Sterilizer. C. W. Cathcart.
16 Case of Intracranial Traumatic Arteriovenous Aneurysm Affecting Both Eyes. W. George and A. Miles.

13. **Cases Treated with Bêraneck's Tuberculin.**—The first case cited by Fleming was one in which there were innumerable caseous cervical glands, so extensive as to preclude the possibility of their being removed by operation in the usual way, and Roentgen-ray examination demonstrated that the glands extended into the mediastinum. The second case was a tuberculous pleurisy with effusion, which had persistently resisted other treatment, and in which the swinging temperature, rising sometimes to 100 F., sometimes as high as 101 F., fell at once after the first dose of tuberculin, and did not rise again above normal. The third case was that of a boy aged 13½, suffering from tuberculous glands in the abdomen, attended by a great deal of abdominal discomfort. He had no pyrexia, but his increase in weight, and the general improvement in the condition of the abdomen which followed treatment, were alike remarkable.

The fourth case is interesting because, although under the effect of tuberculin, the temperature suddenly ceased to swing; there was no improvement in the patient's condition as regards the tuberculous lesion. While under tuberculin treatment, the boy started what was proved pathologically to be an extensive miliary tuberculosis and died of tuberculous meningitis. Small doses of Béraneck's tuberculin, given during the period when the meningitic symptoms were most marked, did not have any effect either in reducing temperature or in alleviating symptoms.

Glasgow Medical Journal

November, LXXXII, No. 5, pp. 321-399

17 Six Cases of Disease of Lower Abdominal Organs, Some of Which Simulated Tumors of the Uterus and Adnexa. J. M. M. Kerr.
18 Two Cases Illustrative of Splenic Anemia and Splenectomy. W. R. Jack and D. T. C. Frew.
19 Practical Points in Abdominal Surgery. T. K. Dalziel.

Indian Medical Gazette, Calcutta

October, XLIX, No. 10, pp. 377-416

20 Meaning of Insanity. G. F. W. Ewens.
21 Comparison between Mental Processes in Sane and in Insane. O. A. R. Berkeley-Hill.
22 Prevention of Mental and Nervous Diseases. A. Overbeck-Wright.
23 Ganja as Cause of Insanity and Crime in Bengal. A. S. M. Peebles and H. V. Mann.

Journal of Tropical Medicine and Hygiene, London

November 2, XVII, No. 21, pp. 321-336

24 Meteorology of Malaria. M. D. O'Connell.
25 Case of Leishmania Tropica with Fatal Termination. A. R. Neligan.
26 Babesia or Piroplasma. A. J. Chalmers and R. G. Archibald.
27 Useful Prescription in Chronic Malaria with Enlarged Spleen. J. Cantlie.

Lancet, London

November 7, II, No. 4758, pp. 1079-1132

28 Recent Advances in Science and Their Bearing on Medicine and Surgery. R. Ross.
29 Wounded in War: Some Surgical Lessons. D. Power.
30 Intratracheal Administration of Chloroform. W. D. Mart.
31 Ether Anesthesia by Intratracheal Method. Report of Forty-Nine Cases. R. L. Jones.
32 *Accessory Spleen Causing Acute Attacks of Abdominal Pain. R. C. Alexander and A. Romanes.
33 Action of Drugs on Plants. J. C. Bose.

32. **Accessory Spleen Causing Acute Attacks of Abdominal Pain.**—In the case which Alexander and Romanes observed the patient was a young woman aged 25, who three years previously had had her right kidney removed for calculous pyonephrosis. A year previously to her admission to the hospital she was suffering from an attack of tonsillitis, and while her medical attendant was treating her for that condition she complained of abdominal pain. Alexander, who saw her at that time, discovered a mass about the size of a golf ball in the left upper quadrant of the abdomen. This mass could be freely moved about all over the upper abdomen and was somewhat tender to touch. The only other clinical facts of note were a greatly enlarged left kidney, possibly a compensatory hypertrophy, and a considerable degree of albuminuria. A few days later another examination was made, and this time the lump could not be felt until the patient sat up in bed, when it was easily palpated. She was sent to the surgeon who had previously removed her kidney, but owing to her general health being below par, he was unwilling to operate. She returned home and improved in general health, but was subject to frequent attacks of pain of a dragging nature in the upper abdomen, this pain having no relation to the taking of food. The pain was usually rendered worse when the patient stooped, and was unaccompanied by other symptoms. These attacks of pain occurred

almost daily, coming on suddenly, lasting for one or two hours, then passing off and leaving her quite well.

In August, 1912, with the exception of the enlargement of the left kidney, nothing abnormal was detected on examination. The spleen was normal in size. Her general health was good and the amount of albumin in the urine very small. The tentative diagnosis of mesenteric or omental cyst was made, and as the patient said that the pain was exceedingly severe when it occurred and that it made her miserable, under a general anesthetic an incision was made through the upper part of the left rectus muscle. The viscera appeared normal and no trace of any tumor could be found till the hand was passed up under the diaphragm on the left side and a rounded mass was felt. This proved to be an accessory spleen about the size of a small tangerine orange situated at the lowest part of the great omentum. There were several large vessels running toward it. The omentum was ligated and the splenculus, which was entirely surrounded by omentum, was removed. The stump of the omentum was carefully stitched to prevent adhesions forming and the abdomen closed. No other accessory spleens were seen. Convalescence was uninterrupted and the patient had no recurrence of symptoms. Microscopically, its structure resembled that of the spleen, except that the lymphoid follicles were not so well developed and that there was considerable fibrosis of the whole organ with recent and old hemorrhages. The authors regard that cause of the pain to have been congestion of the viscus from torsion of the omentum obstructing the return of the blood-flow. There was no necrosis visible and there had been apparently no arterial obstruction.

Presse Médicale, Paris

October 29, XXII, No. 73, pp. 657-664

34 Improvised Arrangement for Treatment with Electricity in Military Hospitals. (Moyen tres simple d'électrisation pour hôpitaux militaires.) H. Bordier.

November 5, No. 74, pp. 665-672

35 Prophylaxis of Epidemics during Wartime. (Conseils pratiques aux soldats et aux populations.) A. Martinet. (Prophylaxie et *traitement du choléra.*) L. Lagane.

36 The Wounded and the Base Hospitals. (Nos blessés et les formations sanitaires d'arrière.) F. Jayle. Commenced in No. 73.

Correspondenz-Blatt für Schweizer Aerzte, Basel

October 3, XLIV, No. 40, pp. 1249-1280

37 *Biologic Variability as Factor in Myopia.* (Die Variabilitat als Grundlage einer neuen Myopietheorie.) A. Steiger.

38 Compulsory Insurance of the Working Classes. (*La loi* des assurances et sur son application.) Pometta.

October 10, No. 41, pp. 1281-1312

39 Heat and Vital Energy. (Die Warme im Energiehaushalt des Organismus.) W. R. Hess.

40 Protective Ferments in Eye Diseases. (Vorkommen von Schutzfermenten bei Augenerkrankungen.) C. A. Hegner.

Deutsche medizinische Wochenschrift, Berlin

October 22, XL, No. 43, pp. 1881-1896

41 Infected Wounds. (Wundinfektionskrankheiten.) G. Jochmann.

42 Care and Treatment of the Feet on Marches. (Die Marschkrankheiten, ihre Entstehung, Verhütung und Behandlung.) P. Schuster.

43 Apparatus for Local Anesthesia on Large Scale. (Feld- und Lazarettapparat fur Lokalanasthesie in Massenanwendung.) P. Kuhn.

44 Lint, etc., as Substitutes for Ordinary *Dressings.* (Ersatz von Verbandmitteln im Kriege.) Momburg.

45 *Gap in Motor Nerve Bridged by Stretch of Sensory Nerve *from* same Trophic *Center.* (Neue Methode der Transplantation bei Nervendefekten.) F. Cahen.

45. **Transplantation of Nerve.**—In the case reported by Cahen a gap of 12 cm. was left in the ulnar nerve after removal of a neurofibroma. The patient was a woman of 48 and the gap was bridged with the medial cutaneous nerve of the forearm. It was easily separated from the ulnar nerve in front of the axillary vein, and divided on a level with the peripheral stump of the ulnar nerve. The central stump of the cutaneous was then joined by a perineural suture to the peripheral end of the ulnar nerve. The central end of the ulnar nerve was then sutured to the trunk of the cutaneous nerve. The functional use of the nerve became restored surprisingly soon. By the fifth week the interossei muscles were functioning, and within six months the hand was being used practically normally. Sensation returned on the ulnar side of the fourth finger. Light pressure on the little finger still causes a slight tingling to run up the forearm.

Deutsche Zeitschrift für Chirurgie, Leipzig

August, CXXX, Nos. 5-6, pp. 433-640

46 Pathologic Hernia Content. (Zur Pathologie des Bruchinhaltes.) S. Pollag.

47 *Importance of Positive Luetin Reaction in Diagnosis of Surgical Affections. W. Keppler and E. Herzberg.

48 *Splenectomy in Hemolytic Jaundice. (Zur chirurgischen Therapie des hämolytischen Ikterus.) P. Graf.

49 *Dermoid Tumors *in the* Mediastinum. W. Pohl.

50 *Mechanical Predisposition of the Apex of the Lung to Disease. (Experimentelle Untersuchungen über die mechanische Disposition der Lungenspitze für Tuberkulose.) K. Iwasaki.

51 Formation of Gas in Open Abdominal Cavity. (Gasbildung in der freien Bauchhöhle.) H. Fründ.

52 *Accessory Thyroid at Base of Tongue. (Die Zungenstruma.) R. Asch.

53 Cystic Disease of the Kidney *Simulating Rupture.* N. Paus.

47. **Luetin in Differentiation of Surgical Processes.**—A positive reaction testifies with practical certainty that the affection in question is of syphilitic origin, according to the experiences related in this article. If there is no pronounced reaction, the test should be repeated a week or ten days later; it may then prove positive. Negative findings by no means exclude syphilis. The reaction is more constantly positive in the third phase of syphilis, and especially when there are manifest surgical lesions. In these conditions the luetin test was found more reliable than the Wassermann.

48. **Splenectomy in Jaundice from Excessive Destruction of Blood.**—Graf comments on the familial character of this disease, and the absence of detectable bile pigment in the urine while it is present in the blood. The second generation feels the effects, generally, more severely than the first generation known to be affected. Some are born with the jaundiced tint; others develop it later. Hemolytic jaundice differs from Banti's disease chiefly by its familial character and the exceptional fragility of the red corpuscles. In Banti's disease, further, the jaundice stage is comparatively brief. Graf reports the case of a family with thirteen living children in which the father and six of the seven younger children present the typical syndrome of hemolytic icterus. The others have escaped it, and the jaundice was never very pronounced and in some has retrogressed. The enlargement of the spleen preceded the jaundice by several months, and the general health fluctuated with the size of the spleen. The two girls who seemed most seriously affected were treated by splenectomy with great benefit. The spleen was removed also from a man of 38 with typical hemolytic jaundice. The family history in this case was not known, but the jaundice had been noticed for nine years. The results a year after the splenectomy in these cases confirm the advantages of this procedure in hemolytic jaundice in adults. In the girl of 12 the reds have increased until they now number almost seven millions, and time alone will tell how the child is going to bear this polycythemia. Splenectomy therefore should not be advised for a child unless forced by severe disturbances. In the above-mentioned family the physical development of one youth of 17 was below par, and in the last few months he has had pneumonia and articular rheumatism. On this account splenectomy was advised, but the family refused.

49. **Mediastinal Dermoids.**—Pohl summarizes six additional cases found in the literature since Dangschat's compilation in 1903. The list includes Ceelen's case in which cancer had developed in the dermoid tumor. Pohl then reports the fifty-second case. It was a typical teratoma found in the anterior mediastinum of an otherwise healthy girl of 7. She died about a year after a contusion of the chest during play, followed by various respiration and heart disturbances from the injury to the teratoma.

50. **Mechanical Predisposition to Apical Disease.**—Iwasaki's extensive experimental research failed to confirm the alleged anatomic and pathologic bases on which Freund founded his operation of chondrectomy and Bacmeister his induced stenosis of the upper aperture.

52. **Lingual Goiter.**—Asch removed a small tumor from the base of the tongue which the patient, a healthy woman of 28 with three healthy children, first noticed two weeks before. It caused no disturbance except some interference with breathing as she lay in bed. What seemed to be the thyroid gland could be palpated deep in the neck, so no danger was anticipated from removal of this tumor even if it proved an accessory thyroid gland. The microscope revealed that the tumor was made up of both thyroid and parathyroid tissue. The woman felt well for a fortnight and then developed postoperative tetany and myxedema in a pronounced form, and by the end of six months she presented typical cachexia thyreopriva and parathyreopriva. She failed to take the thyroid treatment that had been advised, but the disturbances gradually subsided spontaneously. At present, four years since the operation, there are no symptoms except a slight myxedematous condition. The literature on lingual goiter is reviewed, with 133 bibliographic references. Among the 95 cases on record are 35 in which signs of thyroid insufficiency had been noticed before the operation (21) or necropsy (14). Only 12 per cent. of the total cases were in males. These tumors are always on the median line of the tongue, and generally fluctuate in size. In one case iodin treatment caused the tumor to increase in size while the general health suffered. Palpation of the thyroid region is not always very reliable, and in Asch's case had probably given misleading findings. In 9 per cent. of the total 95 cases of lingual struma, myxedema followed its removal. It would be better not to remove the whole of the tumor in case of doubt. In 4 cases another operation was required later; in a few other cases the tumor returned but subsided spontaneously later.

Medizinische Klinik, Berlin

November 1, X, No. 44, pp. 1633-1654

54 *Dysentery. G. Singer.
55 *Symptoms and Treatment of Tetanus. F. Blumenthal.
56 Exanthematous Typhus. (Flecktyphus.) A. Frisch.
57 *Genital Hemorrhage in Newly Born Girl Babies; Ten Cases. (Genitalblutungen neugeborener Mädchen.) E. Zacharias.
58 Treatment of Arteriosclerosis and Obesity. C. H. Wedekind.
59 *Action of Epinephrin. (Zur Frage der Adrenalinwirkung.) J. Löwy.

54. **Dysentery.**—In the course of this discussion of the present status of dysentery Singer emphasizes that it must be managed on surgical principles. That is, we must appreciate that there is a large area of pathologic surface, and that the task is to keep this surface well drained and prevent accumulation of secretions at any point. The diarrhea is Nature's effort to accomplish all this, and we must aid this by copious flushing out of the bowel. He uses a soft two-way tube for this, and can thus flush the bowel with three or more liters, without discommoding the patient, until the fluid comes away clear. He commends bolus alba or charcoal as an important aid. In conclusion, he warns that the bacilli are liable to settle down and hibernate, as it were, for years. This is probably the true cause of chronic ulcerative colitis in some cases.

55. **Tetanus.**—Blumenthal, in commenting on the importance of an early diagnosis of tetanus, says that pains and twitching in the muscles around a wound liable to be infected with tetanus germs should give the alarm at once and call for preventive injection of antitetanus serum. These slight pains in the region are usually ascribed to rheumatism. We must constantly be impressed with the fact that trismus is by no means the first sign of tetanus, although it is of course the first unequivocal sign.

57. **Genital Hemorrhage in the Newly Born.**—Zacharias reviews the literature on this subject and reports ten cases from Zweifel's service at Leipzig. The hemorrhage does not seem to have any practical importance, and it subsides spontaneously after a day or so, although in some of the cases on record there was scant oozing of blood from the vagina for four to eight days. No symptoms accompanied the genital hemorrhage. Halban ascribes it to hyperemia of the uterus induced by the action of some hormone from the placenta, but Zacharias remarks that it must be more than a casual coincidence that his ten cases were all in unusually large children. At any rate, he adds, the unusual size of the child predisposes to the phenomenon. These ten cases represented 2.5 per cent. of the 400 girl babies systematically examined to detect the tendency.

59. **Dangerous Action of Epinephrin in Addison's Disease.**—In Löwy's case of advanced Addison's disease an intravenous injection of epinephrin caused sweating over the entire body and then sudden arrest of both the heart and the respiration. Only after half an hour's vigorous artificial respiration was the patient revived. In another case there were signs merely of irritation of the left sympathetic. An intravenous injection of epinephrin was followed by intense tremor and pallor, and the left side of the face alone was bedewed with sweat.

Münchener medizinische Wochenschrift, Berlin

October 27, LXI, No. 43, pp. 2125-2160

60 Specificity of the Protective Ferments. (Experimentelle Untersuchungen über die Spezifitat der Abwehrfermente mit Hilfe der optischen Methode.) H. Jaffé and E. Pribram.
61 The Casein-Splitting Ferments. (Bedeutung der kaseinspaltenden Fermente.) M. Kastan.
62 *Cardiac Asthma in a Child. P. Rohmer.
63 *Restriction of Fluids in Treatment of Edema not Traceable to Heart or Kidney Disease. (Durstkur bei Oedemen nicht-renal-kardialer Natur.) W. Nonnenbruch.
64 *Roentgen Treatment of Exophthalmic Goiter. (Zur Behandlung der Basedowschen Krankheit mittels Röntgenbestrahlung.) R. Sielmann.
65 Isolated Perichondritis of the Ensiform Process. E. Ruediger.
66 Diagnosis of Tuberculosis in Children. K. E. Ranke. Commenced in No. 42.
67 Gunshot Wounds of the Intestines. (Schussverletzungen des Darmes.) E. Enderlen.
68 *Tetanus. F. Voelcker and K. W. Eunike.
69 Experiences with the Wounded. (Die ersten Kriegsverletzungen im Vereinslazarett Schwenningen a. N.) K. Kolb.
70 Experiences of a Surgeon on the Firing Line. (Erlebnisse und Beobachtungen im Felde.) C. Thomalla.
71 Aviator's Arrow Pierces Shoulder and Peritoneum. (Tödliche Verletzung durch Fliegerpfeil.) Grunbaum.
72 *The Supply of Dressings. (Verbandstoffe sparen!) D. Krecke.
73 Mental Disease in the War. (Geisteskrankheiten im Kriege.) W. Weygandt. Commenced in No. 42.
74 Orthopedics for the Wounded. (Die Orthopadie im Kriege.) F. Lange. Commenced in No. 42.

62. **Cardiac Asthma in a Child.**—As arteriosclerosis is so rare in children, cardiac asthma is correspondingly rare, but Rohmer reports a typical case in a girl of 6 subject to recurring articular rheumatism. There was also heart disease and a tendency to dropsy when the child was first seen. The failing compensation was restored by suitable treatment and the ascites was absorbed. The fifth week, however, severe dyspnea developed like a bolt from a clear sky; the contrast was striking between the extreme difficulty in breathing and the negative physical findings. After a few days pulmonary edema ensued, speedily fatal. The necropsy findings confirmed the explanation of the syndrome as true cardiac asthma.

63. **Restriction of Fluids in Treatment of Edema Not Due to Heart or Kidney Disease.**—Nonnenbruch's experience has confirmed the assumption that the edema with kidney disease is the result of factors outside the kidneys. In a recent case of lymphatic leukemia in a man of 53 with edema in the left leg for six months and of both for three weeks, he kept down the intake of fluids. The output of water was increased materially by not allowing the patient more than from 700 to 1,100 c.c. of fluids during the twenty-four hours, and finally not over 600 c.c. With this the urine totaled systematically from 1,020 c.c. to 1,500 c.c. The edema subsided and the patient felt immeasurably relieved and was able to walk once more. In a case of pleurisy with effusion in a man of 25 similar benefit followed reduction of the intake of fluid to 500 or 600 c.c.; the amount of urine increased and the specific gravity ran up from 1.020 to 1.028. The area of dulness grew smaller and there was considerable subjective relief. In two other cases the benefit was also striking when the intake of fluids was restricted to 500 c.c. or less. In one patient the edema accompanied a cancer in the stomach; the other patient, a woman of 43, had an ovarian cyst, extreme ascites and pleurisy. Twelve liters of ascitic fluid were

drawn and the intake of fluids restricted for two weeks to about 400 c.c. When more was taken, the weight rapidly increased and was brought down to normal only by keeping the intake at 200 or 300 c.c. for several days. This patient died soon after of pulmonary edema. These cases amply confirm the beneficial influence of restricting the intake of fluids in dropsy from any cause.

64. **Roentgen Treatment of Exophthalmic Goiter.**—Sielmann has given twenty-one Basedow patients systematic Roentgen treatment in the last five years. The total duration of treatment was from six weeks to six months, and he never allowed the exposures to reach the point of inducing a dermatitis. His experience was so favorable that he urges this as the routine method of treatment after failure of medical measures. If this fails, then an operation should be considered. It may prove useful likewise to supplement operative treatment if this does not realize a complete cure. Only one of his patients failed to show benefit from the Roentgen treatment and required an operation. One patient was a young man with palpitations for a period of eight years, developing into pronounced typical Basedow's disease, was remarkably improved by four exposures, and by the end of three months, interspersed with three weeks' pauses, he was practically cured. The neck was 4 cm. smaller in circumference and the pulse, formerly 120 or 160, was permanently 80 and the exophthalmos and tremor had entirely disappeared. Another case teaches that an operation on the thyroid gland is not always a complete cure. The improvement for a few months after the Roentgen treatment yielded to a stormy recurrence of the syndrome and operative treatment was applied. This was followed by apparently a complete cure for a year, but then the whole syndrome returned again, but was banished anew by a few Roentgen exposures. Another lesson from this case is that the ovaries, the pituitary body or other glands evidently cooperate in bringing on Basedow's disease, and thyroidectomy does not remove all the cause.

68. **Tetanus.**—Voelcker reports encouraging success with a combination of antitetanus serum, subcutaneous injection of 5 c.c. of a 2 per cent. solution of phenol, plus local cauterization of the wound with concentrated phenol. This does not produce an eschar at once, to impede its action on the tissues, so it burrows deep and effectually sterilizes. He reports four cases of tetanus after shrapnel wounds in which this method of treatment was successfully applied. The trismus came on from the ninth to the fourteenth day after the injury. He gave the subcutaneous injections once or twice a day at first, increasing to five or six a day.——Eunike reports ten cases of tetanus among the 3,000 wounded in his charge at Ludwigshafen. The incubation was from nine to twenty-one days, and five of the men died. He warns that the early symptoms are liable to be ascribed to rheumatism or be disregarded, and thus precious time is lost.

72. **Losses in the War.**—Krecke's text is the necessity for economy in dressings for wounds, and he suggests various fiber-woven materials that might be used instead of cotton for dressings. To emphasize the need for economy, he remarks that losses up to 50 per cent. must be reckoned with in this war. In the Franco-Prussian war the losses averaged 18 per cent.; in the Manchurian campaign the Russian loss was 29 per cent. and the Japanese 40.9 per cent., but in the present war, he continues, "With 2,000,000 fighting, we must look for losses of 1,000,000. How large a proportion of this will be composed of wounded we have no means of estimating, but it is certainly not exaggerating to say that we can reckon with a half million wounded in the course of the first year of the war."

Wiener klinische Wochenschrift, Vienna

October 29, XXVII, No. 44, pp. 1399-1442. Wagner von Jauregg Number.

75 *Chronic Veronal Poisoning. (Ueber chronischen Veronalismus.) O. Glaser.
76 *Psychic Changes after Resuscitation after Hanging. (Psychische Veränderungen bei wiederbelebten Erhangten.) H. Herschmann.
77 Traumatic Paradoxic Cerebral Embolism. (Paradoxe Hirnembolie als Unfallsfolge.) M. Infeld.
78 Progressive Paralysis under Tuberculin Treatment; Ten Cases. (Ueber zehn Fälle von geheilter Paralysis progressiva nach Behandlung mit Tuberkulin.) A. Joachim.
79 Paralysis of the Musculocutaneous Nerve; Two Cases. H. Müller.
80 Hysteria. (Zur Hysteriefrage.) E. Raimann.
81 *Etiology of Nervous and Mental Diseases in Private and Hospital Practice. (Statistisches zur Aetiologie der Nerven- und Geisteskrankheiten.) E. Redlich.
82 Dermographism. R. Reznicek.
83 *Tardy Tetanus of Gastric Origin. L. E. Wexberg.
84 Care of the Wounded. (Verwundetenfürsorge im Kriege.) v. Eiselsberg. Commenced in No. 43.

75. **Chronic Veronal Poisoning.**—Glaser summarizes from the literature nine cases of chronic veronal poisoning and adds a tenth case to the list. The drug had been prescribed for a temporary condition and the patient had continued its use for several months. Even when the single doses are small, the continued use in this way is liable to entail serious symptoms. The central nervous system is affected by it, and predominantly the cerebellum and the vestibular portion of the cochlea. The gastro-intestinal tract and vascular apparatus do *not* seem to be affected except as the drug depresses the action of the bowels and kidneys. This, with the euphoria and the habituation to small doses, tend to magnify the toxic influence of the veronal. The experiences related warn of the necessity for care in prescribing veronal for patients with a tendency to nervous or mental asthenia, and in any event to see that the drug is not taken continuously.

76. **Psychic Changes After Resuscitation of the Hanged.**—This number of the *Wochenschrift* is dedicated to von Wagner in honor of the twenty-fifth anniversary of his incumbency of the chair of nervous and mental diseases at the University of Vienna. He published about that time two cases in which women had been resuscitated after apparent death by hanging. Herschmann here reviews the similar cases on record and describes four unpublished cases. The upset of the circulation in the brain by the hanging causes a reactional functional hyperemia with concomitant physical-chemical phenomena which, in a number of cases, either completely cured a preceding psychic affection or aggravated it to complete mania. Redlich has witnessed a similar complete cure of extreme melancholia after recovery from a suicidal dose (3 or 4 gm.) of tincture of opium. Pötzl has observed a similar transformation after sunstroke in several instances.

81. **Etiology of Nervous and Mental Disease.**—Redlich compares 6,000 cases from his private practice with the statistics from a number of hospitals in Vienna and Berlin. In 14 per cent. of his 6,000 private cases syphilis could be incriminated. Multiple sclerosis was much more frequent in women than in men, while tabes affected 364 men to only 37 women. General paresis affected 39.7 of the men and only 4.4 of the women among his 890 patients with mental affections. In the hospital patients there was not this discrepancy, the figures being here 23.7 per cent. of the men and 11 per cent. of the women. The large percentage of syphilogenous affections and the evidence of the predominance of arteriosclerosis of the cerebral vessels, are interesting facts demonstrated in his private practice as compared with the hospital patients. In his 59 exophthalmic goiter cases, the women outnumbered the men 2.2 to 1, but of the 145 neurasthenics, there were 100 men to each 41.7 women.

83. **Tetany of Gastric Origin.**—Wexberg's patient was a woman of 56 who since the age of 37 had had more or less "stomach trouble" and at 48 attacks of tetany came on and recurred during the following eight years, at intervals of from three to six weeks. Wexberg's diagnosis was true tetany of gastric origin, and he gave the woman hydrochloric acid and pepsin to supplement the deficient gastric digestion, the test breakfast having shown apparently total lack of acid and pepsin in the stomach content. This treatment restored clinical conditions to normal; all the stomach symptoms subsided and with them the signs of tetany, including Trousseau's phenomenon. For the first time in eight years there have been no spasms for more than two months to date. The literature on the subject of gastric tetany is reviewed.

Zeitschrift für klinische Medizin, Berlin

LXXX, Nos. 5-6, pp. 381-550. Last indexed August 8, p. 518.

85 Metabolism of Albumin in Experimental Pancreas Diabetes. II. (Eiweissstoffwechsel beim experimentel Pankreasdiabetes.) A. Galambos and B. Tausz.
86 *Cholesterin Esters in the Urine. (Ausscheidung anisotropen Fettes mit dem Harn in Zusammenhang mit dessen Ablagerung in den Organen.) A. Lawrynowicz.
87 Blood-Pressure with Arteriosclerosis and Nephritis. (Blut- und Pulsdruck bei Arteriosklerose und Nephritis.) W. Janowski.
88 *Classification of Uremia. (Zur Klinik und Einteilung der Urämie.) E. Reiss.
89 Influence of Secretions of Ductless Glands on Purin Metabolism. Fleischmann and Salecker.
90 Accessory Murmurs Heard over the Aorta. (Nebengeräusche über der Aorta.) Külbs.
91 Metastatic Obstruction of the Esophagus by False Membrane in Fatal Case of Diphtheria. W. Ceelen.
92 Double Arterial Wave with Aortic Insufficiency. (Anakroter Puls an der Arteria carotis und Arteria subclavia bei Aorteninsuffizienz.) M. Ludin.
93 Elimination of Creatin and Creatinin in Diabetes and Nephritis. D. Lampert.
94 Myeloma. H. v. Bomhard.
95 Intracranial Murmurs. (Kranielle Gerausche.) H. Köster.

86. Reviewed in The Journal, Oct. 31, 1914, p. 1615.

88. **Classification of Uremia.**—Reiss presents evidence to prove that uremia occurs in three principal types, with mixed forms. The first type, asthenic uremia, is characterized by drowsiness and apathy, physical fatigue and liability to sudden death from heart failure. The elimination of salt, nitrogen, etc., by the kidneys is defective. In the blood the osmotic pressure and the residual nitrogen are abnormally high. The second type is that with a tendency to convulsions and paralysis of speech and limbs. The external secretion of the kidneys is normal and likewise the blood findings in this form of uremia. The third type is characterized by psychic disturbances, confusion, hallucinations, visual and other delusions and profound coma. These conditions are generally transient. With this type also there does not seem to be any retention of normal waste products, but the arteries of the brain show signs of sclerosis in these cases, and this possibly favors the trouble. Mixed forms with one or the other of these types predominating are most common. Pure examples of the first and third types are comparatively rare. The trouble in uremia seems to be mainly an inability to dilute properly the juices and fluids in the body. The normal relations between the water and the dissolved substances are upset. The blood-serum shows the albumin content constantly within or above normal range, even when by intake of large amounts of fluid and venesection efforts are being made to dilute it.

Zeitschrift für Urologie, Berlin

August, VIII, No. 8, pp. 609-698

96 *Diagnosis and Treatment of Movable Kidney. (Wanderniere.) W. V. Simons.
97 Large Ureter Stone. P. A. Specklin.
98 *Primary Cancer of the Ureter. O. M. Chiari.

September, No. 9, pp. 699-738

99 Pyelitis in Pregnant Women. K. Franz.
100 Factors Influencing Secretion-Pressure in the Kidneys. (Experimentelle Beobachtungen uber den Sekretiondruck der Nieren.) Hammesfahr.
101 The Normal Bladder and Its Sphincters; Changes Following Suprapubic Prostatectomy. A. Hyman (N. Y.).

96. **Wandering Kidney.**—This long article from Küttner's service at Breslau is based on 48 cases. Operative treatment was applied in 25; on both sides in 4. There was ptosis of other organs in 12 and trauma was incriminated in 12; 22 of the 40 women had borne children and there was intermittent hydronephrosis in 9 cases, and 18 of the patients had had attacks of local pain. One patient died within a year of uremia and one succumbed to hemophilic hemorrhage after the operation, and another was saved only by nephrectomy. Recent data from 16 of the 19 nephrectomized patients show that 4 were cured, 5 improved, 5 unimproved and 2 have died; from 8 of the 17 given conservative treatment, only 3 are cured and 2 improved; 3 were not benefited, and one of the improved has to wear a bandage. Küttner suspends the kidney from the twelfth rib, passing one or more suture threads through the parenchyma of the superior pole and suturing the capsule with silk to adjacent muscle or fascia; sometimes one drain; bed-rest for eighteen or twenty days.

98. **Cancer of the Ureter.**—From a woman of 54 Chiari successfully removed 15 cm. of the left ureter containing a papillary cancer, the eighth he has found on record. He compares his case with others of cancer of the ureter, the literature showing seventeen cases of primary malignant disease in the ureter. The diagnosis in his case was rendered practically certain by catheterization of the ureter, showing the bleeding obstruction.

Zentralblatt für Chirurgie, Leipsic

October 31, XLI, No. 44, pp. 1633-1656

102 *Economy in Dressings. (Ueber Sparsamkeit beim Gebrauch der Verbandstoffe.) F. Franke.

102. **Economy with Dressings.**—Franke protests against too frequent change of dressings, and says that the dressing material often is not utilized to the utmost. Unless there is danger that the scar may be disfiguring, he does not change the dressings as early as some do, seldom before the ninth day after amputation of the breast, for example, which he always drains now since he had disagreeable experiences in a few cases with retention of blood. He insists on having the dressings applied in his service in such a way that they can be unwound and placed to soak till next day in the already used lye in the laundry. Then they are washed in fresh lye, rinsed, dried and sterilized. By this means they can be used over again, six or seven times or more. Gauze sponges are used over again in the same way—eight layers are overcast to make a sponge; when they grow too ravelly, a number of them are wrapped in a square of mull and used for a dressing pad. The outer bandage can be made of thicker mull or cambric and lasts indefinitely. The dressings can thus be utilized to the last scrap, and end by doing good service in the form of sterilized lint. He has never had any harm result from this economy in dressings, no infection among the washerwomen. The ironing is done by convalescents.

Zentralblatt für Gynäkologie, Leipsic

October 31, XXXVIII, No. 44, pp. 1369-1392

103 Importance of Distinguishing the Lower Segment of the Uterus; the Uterus Isthmus. (Das untere Uterinsegment.) J. Veit and P. Zweifel.

Zentralblatt für innere Medizin, Leipsic

October 31, XXXV, No. 44, pp. 969-984

104 Staphylococcus Erysipelas. F. Reiche.

Gazzetta degli Ospedali e delle Cliniche, Milan

August 9, XXXV, No. 95, pp. 993-1008

105 Cholesterinemia in Pulmonary Tuberculosis. A. Farini.

August 11, No. 96, pp. 1009-1016

106 Fecal Concrements Cause of Appendicitis; Nine Cases. C. Scandola.

September 6, No. 106, pp. 1121-1136

107 Vaccination against Small-Pox. C. S. Materazzi.

October 25, No. 120, pp. 1845-1860

108 Early Syphilitic Phlebitis; Two Cases. V. Fisichella.

Pediatria, Naples

November, XXII, No. 11, pp. 803-880

109 Blue Spot in Children. (Frequenza delle macchie mongoloidi nella popolazione infantile di Cagliari.) O. Cozzolino.
110 Relations between Alexin Content of the Blood Serum and Phenomena of Anaphylaxis in Tuberculous Children. S. Maggiore.
111 Kala-Azar in Children in Naples District. (Nuovi casi di Leishmaniosi infantile osservati a Napoli e dintorni.) G. Gatti.
112 *Diagnostic Importance of Enlarged Glands in Axilla with Glandular Tuberculosis in Infants. (Il segno di Hochsinger nella diagnosi di adenopatia tracheo-bronchiale nel lattante.) A. Corica.

112. **Diagnostic Importance of Enlarged Glands in Axilla with Glandular Tuberculosis in Infants.**—Corica found the skin tuberculin reaction pronounced in thirty-three of forty infants with enlarged glands in the axilla. This evidence of glandular disease—to which Hochsinger first called attention—is thus an important sign of tuberculous tracheobronchial glandular trouble.

Policlinico, Rome

November 1, XXI, No. 44, pp. 1537-1568

113 Sterilization of Intestine against Cholera; Post-Mortem Experiments. C. Fermi and U. Cano.

October 15, Surgical Section, XXI, No. 10, pp. 461-508

114 Separation of Lower Epiphysis of the Femur and Operative Treatment. (Il distacco epifisario inferiore del femore e la sua cura cruenta.) O. Uffreduzzi.
115 Hernia of the Appendix. (Dell'appendicocele comune e dell' appendicocele semplice con sacco in parte aderente.) R. Mosti.
116 Interposition of Fat or other Substance in Operating on Joints, etc. (Di una eccezionale indicazione alla impiombatura per la guarigione di una lesione suppurativa della tiroide e dell'uso della impiombatura nella moderna chirurgia.) I. Scalone. Commenced in No. 9 and continued.

Riforma Medica, Naples

August 29, XXX, No. 35, pp. 953-980

117 *Quantitative Test for Stercobilin in Feces. (Urobilina nelle feci.) G. Gastaldi.
118 Glycosuria and Diabetes in Railroad Employes. C. Rubino.

September 2, No. 36, pp. 981-1008

119 Virulence of Micrococcus of Undulant Fever. G. Lucibelli.
120 Direct Visual Inspection of Abdominal Cavity and Chest. (Laparotorascopia diretta.) A. Roccavilla.
121 Blood Findings in Acute and Chronic Benzol Poisoning. P. Secchi.
122 Kala-Azar. P. Verrienti and P. Russi.

September 12, No. 37, pp. 1009-1036

123 Nutrient Intravenous and Subcutaneous Injections of Sugar According to Kausch; Experimental Research. L. Eustachio.

117. **Stercobilin in the Stools.**—Gastaldi remarks that exact findings are not attainable even with the most complicated usual tests for determination of bile pigment in the feces, while the simple method he uses is accurate enough for practical purposes. He dissolves 0.01 c.c. from the twenty-four hours stool in 50 c.c. of 95 per cent. alcohol and adds 1 c.c. of Obermeyer's reagent, stirring it well for twenty minutes. It is then filtered, evaporated down to 10 c.c. and the Nencki reagent is added until there is a pronounced green fluorescence. The amount of dilution required for this is the quantitative index. At the same time he examines the urine in the same way, stirring 0.01 c.c. from the twenty-four hours urine into 10 c.c. of chloroform; sets it aside to settle, decants the urine, and adds 5 or 6 drops of fuming nitric acid. He then adds alcohol to the chloroform extract thus obtained until the fluid becomes limpid; evaporates down to 10 c.c. and then dilutes with the Nencki reagent until the green fluorescence develops. He tabulates the findings with these tests applied parallel to both urine and stool. In normal conditions the average dilution required is 1:350 and never more than 1:500. In cirrhosis of the liver, fluorescence was apparent even with a dilution of 1:1,300 in one case and the range in five cases was from 500 to 1,300. In seven cases of pernicious anemia the range was from 1:1,000 to 1:4,250. (The Obermeyer reagent is the familiar 2 per thousand solution of ferric chlorid in concentrated hydrochloric acid. By the Nencki reagent Gastaldi probably means the test for indol with nitric acid plus a little nitrous acid.)

Brazil-Medico, Rio de Janeiro

October 1, XXVIII, No. 37, pp. 349-356

124 Case of Cancerous Meningo-Myelitis. A. de Carvalho.

October 8, No. 38, pp. 357-364

125 Acromegaly and Tabes. A. de Castro.

Russky Vrach, Petrograd

XIII, No. 26, pp. 901-932

126 *Abderhalden's Test for Serodiagnosis. G. G. Tara and N. P. Kochneva.
127 Poisonous Action of Extracts of Organs. L. G. Gutman.
128 Antigonococcus Serum. V. Berezoff.
129 *Prognosis in Pneumococcus Meningitis. A. R. Krever.
130 *The Chemical Action of Chymosin. V. M. Sudakova. Commenced in No. 25.

126. **Serodiagnosis.**—Tara and Kochneva compared the dialysis and the optic methods for the Abderhalden test, their findings showing that placenta tissue is not digested by the serum of normal persons, but is digested by that of nephritics. The serum of a pregnant woman digests placenta, carcinoma and lung tissue. The serum in progressive paralysis digests brain tissue, which is not digested by serum from patients with functional psychoses or neuroses. Placenta extract digests placenta and lung tissue, but not that of cancer.

129. **Prognosis in Pneumococcus Meningitis.**—Krever distinguishes two forms of pneumococcus meningitis which differ according to the place of origin, and which give a different prognosis. One form is a pneumococcus meningitis as the result or complication of some other pneumococcus infection, such as croupous pneumonia, otitis media, sinusitis, or endocarditis, etc. This form gives a decidedly unfavorable prognosis. The other form of meningitis is caused by pneumococcus infection from the nasopharynx, when the micro-organisms invade the blood. This form has a comparatively favorable prognosis. The difference in the prognosis is due, Krever thinks, to the varying virulence of the virus which is more active in the former type, leading to a purulent meningitis which usually proves fatal. Coming from the nasopharynx, the virulence of the micro-organisms is somewhat attenuated, causing only a serofibrinous or hemorrhagic inflammation with a better outlook.

130. **The Chemical Action of the Milk-Curdling Ferment of the Gastric Juice.**—This ferment, chymosin, commonly occurs together with the proteolytic ferment, and produces a sediment from solutions of peptonized products. Sudakova studied the chemistry of this ferment experimentally and came to the following conclusions: During the action of chymosin on solutions of peptones there occurs a change of their ability to bind acids and alkalies. These changes depend on the degree of acidity of the medium. Greater acidity of the medium (0.3 per cent.) diminishes the binding ability of the peptones; a lesser acidity (0.04 per cent. and 0.14 per cent.) increases same. The amount of the ferment apparently plays some rôle, but there does not seem to be any direct correlation between the amount of the ferment and the change in the properties of the proteins to bind acids and alkalies.

Hospitalstidende, Copenhagen

November 4, LVII, No. 44, pp. 1321-1344

131 Artificial Heliotherapy for Lupus and Bone and Joint Tuberculosis. A. Reyn and N. P. Ernst. Commenced in No. 43.

Hygiea, Stockholm

LXXVI, No. 19, pp. 1073-1135

132 Connection between the Pituitary Body and Diabetes Insipidus. (Om diabetes insipidus och dess förhållande till hypofysen.) G. Kahlmeter.
133 Present Status of Cultivation of Tissues Outside of the Body. (Om odling av vävnader in vitro.) F. Henschen.

Norsk Magazin for Lægevidenskaben, Christiania

November, LXXV, No. 11, pp. 1249-1368

134 Atypical Reactions to Alcohol and Their Medicolegal Importance. R. Vogt.
135 Diagnostic Measures in Sensory Disturbances of Tabes. (De sensible forstyrrelser i tabes: maal for ledsansen.) G. H. Monrad-Krohn.
136 Mushroom Poisoning. (Fluesopforgiftning.) K. Motzfeldt.
137 Vocal Fremitus with Pleural Effusion. (Et tilfælde av sterk stemmevibration ved pleuraekssudat.) S. Høyer.
138 Treatment of Empyema of the Pleura; Twenty-One Cases. S. Widerøe.
139 *Gummatous Myocarditis. (Gummøs hjertesyfilis.) F. Harbitz.

139. **Gummatous Myocarditis.**—In Harbitz' case a man of 38 who had contracted syphilis fifteen years before, suddenly developed dyspnea and cyanosis and died the fourth day. Necropsy disclosed adherent pericardium and total obstruction by gummas of the superior vena cava for a distance of 1 cm. The lumen was completely obliterated. In this segment and also in the wall of the right auricle and left ventricle there were several gummatous formations. There were also syphilitic changes in the small branches of the coronary artery, in the pleura and the adjacent lung tissue. This is the third case of gumma in the myocardium ever encountered at the Pathologic Institute at Christiania. Syphilis as a direct cause of death, as in this case, is comparatively rare.

Ugeskrift for Læger, Copenhagen

October 29, LXXVI, No. 44, pp. 1893-1930

140 Age at Onset of Menstruation. (I hvilken Alder indtræder Menstruationen hos Kvinder her i Landet?) O. Helms.
141 Spread of Diphtheria by Milk. (Difteritisepidemi foranlediget ved smittebærende Mælk.) V. Holm.

The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. LXIII, No. 25 Chicago, Illinois December 19, 1914

THE SOCIAL STATUS OF MEDICAL PRACTICE*

E. P. LYON
Dean of the Medical School, University of Minnesota
MINNEAPOLIS

This is a significant occasion. Here sit the senior class of St. Louis University, School of Medicine, for the last lecture which they as students will ever listen to. Here are gathered the faculty to lend emphasis to this last lecture. Here stand I who have taught these students and now am chosen to speak last for this faculty to this class. Here on the table are rolls of parchment—the visible tokens of years of toil, of a task accomplished and of this strong, old university's stamp of approval. You, my boys, will presently come up here to receive these diplomas. You will cease to be students in the technical sense. You will become Doctors of Medicine. It is a good time for "balancing the books," for inventory, for forward-looking.

From the army of men of your age you have been picked out. You are a favored few of a large social group. You have received the discipline of a useful and honorable profession. You have been prepared for work in the world. You may think you have done this yourselves, but you have not. Your ancestors who passed on to you choice gifts of heredity have done it. Your fathers and your mothers who denied themselves for you have done it. The race of doctors from the nameless founder of medicine far back in the dark of prehistoric time has made it possible for you to sit here. Large-hearted philanthropy has done it. Wise statesmanship has done it. Broad-minded municipal spirit has done it. The mighty power of human society has done it. Admitting that you have done your share and done it well, the question nevertheless confronts you, "How will you repay these priceless gifts which humanity has conferred on you?"

Now I warn you that I am not going to tell you how to repay. I am not going to lecture you on your duties. This is not going to be a sermon. You are old enough to decide for yourselves. The sentiment I am going to set before you is this from Thomas Huxley: "Learn what is true in order to do what is right."

Knowing What is True: That is where the shoe pinches. Life is very complex. The world is full of people. Interests are multiple and conflicting. Vision is partial and fleeting. Do the best you may, nevertheless the life of each of you is bound to be, in a measure, "A Doctor's Dilemma." If you succeed here, you must fail there. If you master this, you must let that other go. If you save this man's life, you must leave that other perhaps to die.

No one can deliver you from these alternatives. You must make your own judgments. They are what make life worth while. You must stiffen your backbone and carry your own load of responsibility. You must for your own selves "learn what is true in order to do what is right." This address is intended to direct your eyes toward some of the great problems concerning which you must learn the truth, if you are to lay out your lives as physicians along broad and satisfying lines; if you are to be "doctors" in the fullest sense.

EGOISM AND ALTRUISM

At the start I wish to remind you of the two motives which knowingly or not will rule the life of every one of you. First is the egoistic or individualistic motive. This begins with the fact that each one of us is a unit, a single separate animal. Each must live his own life. Each must breathe for himself, eat for himself, sleep for himself, think for himself, enjoy for himself, be sick for himself, die for himself. We cannot get around or deputize these inexorable necessities. Consequently the egoistic motive from the birth of humanity has always been very powerful. It says: "Push forward. Overcome obstacles. Drive off opposition. Overwhelm competitors. Grasp and do not let go. Take wherever ye find. Grow fat, for it is your right. Live your own life fully, for it is all you have. Let others look out for themselves." Thus speaks individualism. Its battle-cry is the Survival of the Strongest. Its prototype is the Superman.

Over against this is the altruistic or group motive. It begins with the fact that each one of us had human progenitors. Our mothers bore us into the world. Our fathers protected us in early life. But all humanity has done in a measure what our fathers and mothers have done. We are members of a great community. We have inherited and must bequeath. The race is more than the individual. We *cannot* live for ourselves alone. We ought *not* to live for ourselves alone. Hence arises the altruistic philosophy, and it says, "Do unto others as ye would they should do unto you." Its battle-cry is Human Brotherhood. Its prototype is Jesus of Nazareth.

Thus are and thus speak the two great motives, egoism and altruism. They seem antagonistic, unlike, far apart as the poles. Yet from a practical point of view we see both acting together in every human being. No man can live absolutely by or for himself. The hermit hunter of the mountains comes down for bullets and gunpowder. The all-conquering Napoleon must make dukes and kings of his generals. On the other hand, no man can live wholly for others. In the first place he cannot get around the imperative necessities of his own body. He must provide for himself. The merchant who gives away his goods soon has no goods to give. The missionary who goes unprotected among cannibals is eaten. To come nearer home, the doctor who does not charge for service will not long be able to serve. It amounts in the end to this: A reasonable regard for self is indispensable that we may serve others. A reasonable service for others is indispensable that we may truly serve ourselves.

---

* Address before the graduating class, St. Louis University School of Medicine, June 1, 1914.

I have led up to this thought with three objects in view: First, to make clear to you that knowingly or unknowingly each of you is bound to adjust his life between the ideals of egoism and altruism. Should it not be knowingly? Should not each move in your career be determined after consideration from both points of view? For one I trust that the latter may be your method of planning your lives—thoughtfully, courageously, with due regard for yourselves and others.

Secondly, I wish you to see that more and more through the ages the altruistic note has become dominant in human affairs. First it was the family for which man limited his individual freedom. Next it was the neighborhood. Next, the tribe. Next, the nation. And with each recognition of altruistic obligation has come further surrender of the individual and further advance of civilization. To-day it may be prophesied safely that no individual right, whether of property or person, will be allowed permanently to stand which conflicts with the prosperity, happiness or health of the organized whole. You will note that I have used the word health here for the first time. The right of society to health is one of the latest rights to be recognized. The right and duty of society to secure and protect health are bound more and more to come to the front as prime motives in limiting the individual. This is a fact of growing significance. It is bound to affect your lives. I shall return to this topic later in this address. For the present I wish to advance my third reason for discussing individualism and altruism. It concerns your chosen profession. Medicine began and has continued until recently quite strictly as an individualistic calling. The nature of the profession led inevitably to this history. Men are sick as individuals. Treating their ailments began as a personal service. As society advanced the intimate relation of patient and physician came more and more to be emphasized. Reasons of business expediency, of personal modesty and of family intimacy made the relation confidential. The individualistic desire to get well is an instinct ever clamorous and insistent, whereas the social value of health is an intellectual concept only slowly gaining acceptance and still more slowly becoming a moving force. We willingly pay to be relieved of individual pain and immediate bodily embarrassments. We have not yet achieved such breadth of vision as to pay to be protected from that which threatens the social body, but may not come to us individually.

Thus medicine grew up and is to-day very largely a personal service. Each of you in a certain sense is going into business. You have something to sell. You will look for a market. You will sell to him who desires to buy. You will take your pay. You will sell to some who cannot pay; to some who will not pay. And just as in every other business, you will make those who do pay pay also in the long run for those who fail to pay. This is the rule of trade. It must be followed if you would succeed financially. It is the inevitable result of the individualistic position of medicine at the present day.

With the knowledge, however, of the nature and cause of disease acquired in the last half century, a change has begun whose effects are already plainly perceptible and whose eventual far-reaching results over your profession no one at present can foresee. We know now that disease is never wholly an individual matter. Some diseases are *predominantly* social. Consequently your relation as physician, to persons afflicted with these diseases must involve a relation to the whole social body. You cease to be merely a seller of merchandise. Your dealing is no longer exclusively with the individual. You become the servant of the whole people. Society already places explicit duties on you; and by implication requires many more. As time goes on it will demand still others. Medicine is losing its individualism. This you must recognize and you must adjust yourselves to the new condition. More than that, you must lead, if you are men worthy of these diplomas, you must lead society in the great movement to eliminate disease. You must become less and less the sellers of healing and more and more the captains of health. This means in the end a broader responsibility and a more dignified station. But meanwhile, it means readjustment and possible hardship. How are you of the next generation of doctors going to face this great social movement? Are you going to sit back on the cushions of ancient privilege? Are you going to rest content on ideals of personal service? Or will you rise to the concept of higher duty? Surely these things are worthy your best thought as you enter and carry forward the work of your profession.

It is therefore not in any ordinary spirit of interest but rather with high inspiration that you are asked to consider more specifically, for these last few minutes, some of the movements and signs of the times.

THE PUBLIC HEALTH CAMPAIGN

First there is the wonderful and far-reaching activity known as public health or preventive medicine. This movement finds its scientific foundation in Pasteur's demonstration of the cause of disease and the nature of infection. It finds its mathematical verification in vital statistics. It finds its financial justification in the value of the human animal. But it finds its moral justification in the altruistic ideal of race welfare and community happiness.

It is hard to discuss this question without resort to statistics. We might show that the average length of human life in Europe has increased from eighteen or twenty years to over forty years. We might quote the death-rate in New York City as 36 per thousand in 1866 and 14 per thousand in 1913. We might estimate what this means to the wealth of the world, when considered "in conjunction with the simple proposition that *wealth is always and only the result of human labor.*"

On the other hand, we might point to the enormous work yet to be done. We might dwell on our national crime of 1,100 preventable deaths a day—fifty lives, perhaps a hundred, in this land of ours, snuffed needlessly out while we sit here during these exercises.

However, figures are dry; statistics do not comport well with commencement joys. I shall content myself with authoritative quotations which ought to stimulate the thought and arouse the activity of every person present.

Says Disraeli:

> The public health is the foundation on which reposes the happiness of the people and the power of the country. The care of the public health is the first duty of a statesman.

Says Pasteur:

> It is within the power of man to make all the infectious diseases disappear from the world.

The significance of these statements for every man and every woman everywhere is easily appreciated. If there is such a thing as social consciousness, then each of us contributes to that consciousness. If there is such a thing as group activity, then each of us must either engage in that activity or act as a drag on social progress. If there is such a thing as group responsibility, then each one of us is responsible. Who shall doubt that there is such consciousness, such activity, such responsibility? Only he who denies absolutely the altruistic ideal. It behooves us, therefore, each and every one to study, endorse, support and actively engage in the public health campaign. If we do less we are false to our duty as men. This applies to all men. It applies particularly to physicians.

But wherein lies the special plea to the medical profession and to this graduating class? Exactly in this: The doctors must be the explorers and pioneers of this great movement for race betterment. This mission they are attempting in every way to accomplish. They *ought*, further, to be the active leaders of public sentiment, the molders of political action and the most scrupulous supporters of every legal regulation. Can the doctors qualify for the latter high offices? I regret to confess my belief that they cannot so qualify.

It is true that physicians as a whole give assent to the principles of preventive medicine. They endorse the health movement, although they know it means diminution of their business. Moreover, practically without exception, they practice those methods of routine in their professional work which are calculated in a measure to limit the spread of disease. Through their associations they carry on an active and valuable campaign of education, and assist in the indispensable political propaganda.

It is as individuals that they fail. And they fail because they still take the narrow individualistic view of their work. They get the patient so close to their eyes that they cannot see the public. They consider their trade and fail to recognize their profession. How many of them, for example, find it convenient to fail to report cases of infectious disease? How many connive at violation of quarantine? How many give weak support to public officials in health matters? I may be wrong in the impression that the number guilty of all these offenses is large. But I am not wrong in the observation that far too few physicians are accurately informed on matters of public health. Far too few are leaders of public sentiment. Far too few even make serious effort to educate their own patients in their public duties. Many valuable measures fail through the indifference of the profession. Many reforms are delayed for years because the doctors are afraid to be reformers. Moreover, one need not search far to discover evidences of active opposition. In England the medical association opposed to the last moment the great insurance act.

You may say that one should not expect the doctors to be different from other people when they see their business involved. But these are educated men and should be alive to the spirit of the times. Many of them are behaving at present much as did the spinners and weavers when power machinery was introduced. Surely the most highly trained profession should rise above the motives of ignorant workmen.

Says Macilwaine:

> The overwhelming majority of the profession do not concern themselves with prevention.

Says Ditman:

> Disease, crime, pauperism, insanity and preventable accidents are the foulest blots on the modern civilized state, and the responsibility for the amelioration of these curses must be faced on the last analysis by the medical profession.

You may point to the important accomplishments in sanitation and public hygiene, and claim the credit for the medical profession. I grant the importance of the achievements and acknowledge in large measure the justice of the claim. These accomplishments, however, involved for the most part, the control of matter and natural forces—what has aptly been termed the "non-human environment." They were largely engineering problems such as water-works, filtration plants, sewers and garbage incinerators. Or they involved control of lower forms of life such as mosquitoes, ticks and rats. The things that are to be done are vastly more difficult because they involve the human animal. Every step from now on must begin with a limitation of individual freedom and individual rights to property. Inherent and heedless egoism is the great barrier to progress in preventive medicine. Not bricks and cement, but human psychology is the material henceforth to be worked on in public health. Only by the painfully slow process of education can the altruistic motive gain ascendancy, and only as such ascendancy is gained will control of the preventable diseases be realized.

In this tremendous but not superhuman task of education the doctors must take the lead. And in proportion as they realize the task and work on it with all their strength, privately and collectively, with their patients as individuals and with the public at large, only thus will they realize the fulness of the term "doctor," which means primarily *one who teaches*. Remember this all ye physicians. And you who to-night receive your diplomas, whenever you look at those documents framed on your office walls, translate in your hearts the words *Medicinae Doctor* into "Teacher of Medicine," and exalt your profession thereby.

One might easily fill a longer time with the enticing theme of public health, but I desire only to hint at things which should stand in large outline as you begin your careers and leave to you to fill in the details. I pass to the related topic of social service.

SOCIAL SERVICE

This too is a pregnant subject. There is a little book by Richard Cabot which every one of you should read. The title is "Social Service and the Art of Healing." You should read that book, I repeat; and if for two years you have passed from clinic to clinic and have not learned how the problem of disease links up inevitably with the problem of poverty and the problem of crime and the problem of ignorance and the problem of heredity and all the other great sociologic problems—then, I say, you are already suffering from that medical blindness which Cabot so clearly portrays. He shows how even in the narrow duty of doing your best for the patient you must look at the background of social conditions. You must look back of the *patient* and see the *man*.

Somewhere else I have read how the physician's classification of diseases according to tissues or poisons or micro-organisms tends to blind the vision to the true causes lying back of all in social and industrial conditions. I need not give examples to prove to you that this statement is true, but I do wish to emphasize its importance. "It is quite clear," says one writer, "that, practically, the elucidation of antecedent conditions may often be vastly more important than the immediate and individual problem of diagnosis." Think of the absurdity of that procedure to which many have called attention, but which exists everywhere in public hospitals and private practice alike—I mean that procedure by which a patient, at large expense of money and effort, is brought to a condition of health and is then turned back into the environment which was the real cause of his disease. This procedure, narrow and unwise in the case of an adult who may be able in some cases to modify his environment, change his employment or his habits of living, becomes actually a social crime when the patient is a little child.

If you are to succeed in medicine even in the narrow individualistic measure which has constituted success in the past, you must cure people so that they will stay cured. Therefore, you must not fail to look at the social background. You must learn to deal with the whole man physically, environmentally, psychologically. You must become proficient in the "study of character under adversity and of the influences that mold it for good or ill;" and that, if we accept Cabot's definition, is to be a social worker. Moreover, you whose *chief* business, admittedly, is the diagnosis and treatment of the ills of the body, will join hands with that new expert who diagnoses and treats the ills of environment and of state. You will call on him for assistance as on any specialist. You will return service for service. You will pull your oar joyfully and manfully in that "team-work of doctor, educator and social worker," whose object is "the care of people in trouble."

This address might have been called "Cooperation in Medicine," because its central idea is to show that medicine like every other human activity tends toward collectivism, toward cooperation. The matters of public health and social service already discussed are two important cooperative enterprises in which I believe that every doctor should take active part. I come now to cooperation in a narrower sense, namely, union of effort to care rightly for the individual patient. This union of effort takes two distinct forms. First, the joining of individuals into a group to care for the ills of the members of the group. Second, the joining of doctors in order the better to care for their patients. Under the first head are included various charities, the fraternal lodges, various forms of insurance societies and companies, industrial concerns and the state or municipality itself, in so far as this largest group makes medical provision for its members. Here we have a complicated and difficult matter; a matter of ever-growing importance, which may change absolutely the social status of medical practice; yet a matter on which medical men are prone to take wrong or at least narrow views. The phrases "contract practice," "company doctor," "sickness insurance" are terms of opprobrium to most of the medical profession; yet the facts and the logic of these facts are simple. You should face them, think them out, adjust your lives to them.

As to the facts: there is first the "submerged tenth" of the population, whose income is always too small for the imperative necessities of proper food, clothing and shelter. When they are sick, they are "down and out." They cannot possibly care for themselves, to say nothing of paying a physician. They must be dependent on some form of assistance or die. Humanity revolts at the latter alternative. Moreover, we are learning that the menace of disease spreads ever from the lowest to the highest orders of society. Organized charity and the state itself, therefore, give freely and largely for this class of unfortunates. Public and charity hospitals and dispensaries are maintained on ever-enlarging plans of material equipment and professional efficiency. The doctors give freely of medical service and administrative knowledge. The very poor in many cities get as good medical service as the rich. On the whole, the lack of inclination and power on the part of society to deal effectively with the underlying and responsible social conditions is the hard and almost hopeless problem as regards the submerged poverty-stricken portion of the population.

But now we come to a second great group of people, composed chiefly of wage earners whose income, so long as they remain in health and have work, is sufficient for the needs of themselves and of those dependent on them. Here are classed the great body of self-respecting laborers and artisans. They are in no sense dependent; on the other hand, they are the backbone of industrialism. It is before the member of this group that ever hangs the imminent possibility that when he gets sick, he first of all will lose his job and secondly will be expected to support his family and pay the doctor. Even in good times and good health many fail to keep more than head and shoulders above water. Illness or non-employment means inevitable submersion. It means drowning unless some form of life preserver is thrown out. Now what is more natural than that this life-preserver should be provided through the cooperative effort of a group, or through the cooperative effort of industry or through the cooperative effort of society as a whole? The first means the lodge or union. The second means the company physician or industrial medical organization. The third means governmental insurance or state medicine.

You have to regard the situation in one of two ways. If your point of view is narrowly individualistic, you may say that the laboring man must maintain himself and bear alone the exigencies of industrial depression, the chance of disease or accident and the inevitable incidence of age. You say, perhaps, that the public is not concerned except to care for the absolutely helpless and the hopelessly indigent. If this is your point of view—and it is a very common one—then the least that you can do is to face the responsibility which your scheme of society involves. You must recognize that your plan must force over the line into the submerged portion of the population many an individual and many a family on whom come, through no fault, perhaps, of themselves, the curse of non-employment, accident or disease. And you must face the fact and the responsibility for the fact that every man so forced over the line into dependence loses something of incentive to labor, something of manhood, something of self-respect. In losing these, his regard for society and law must diminish and his inclination toward parasitic existence must increase. When you consider that sixty-two out of a hundred persons seeking aid from a destitution agency were driven there by illness, you begin to comprehend how serious is your responsibility as medical men if you insist on the individualistic scheme of social organization.

The other point of view is altruistic or, if you prefer, collectivistic. It says that the social order (widely or narrowly considered), is responsible for those accidents which we call sickness and lack of employment. It looks on disease and old age exactly as we have all come to look on fire and burglary and the hazards of the sea. It says that society should carry the burden of all these exigencies. The individual should not be released, but he should bear only his share of the load. All this broadly considered is insurance. It may be government insurance, paid for by taxation, such as the protection afforded by the army, the police, the fire department. It may be corporation insurance as our ordinary types of life, fire and tornado protection. It may be cooperative insurance as in fraternal orders and friendly societies. Whatever its form, the philosophy of insurance is that each participant contributes in proportion to his share of the risk. Not all receive back what they put in. Of a thousand houses insured we expect only a few to burn. But the man whose home does burn receives a much larger sum than he paid in. He receives it gladly and with no stigma of dependence, as would be the case if his friends took up a collection to pay for his house. Surely this form of protection should apply as usefully and properly in meeting the exigencies of accident or disease as those of fire or theft.

Now the medical profession does not object to insurance. Indeed, it approves very heartily when the life insurance comes in at just the right time to liquidate the deceased patient's bill. It highly approves of insurance against malpractice and against automobile injuries. But when insurance attempts to provide medical attendance for a group of poor workingmen, the medical profession is inclined to exclaim in holy horror against the invasion of its ancient prerogatives. It holds up its time-stained right of fee as a banner more esteemed (for the moment) than the noble right of service. It says: "These men pay only fifty cents a month. Do you think we will give any one medical service for fifty cents?" It loses sight of the analogy of the many houses that never burn, but whose owners through insurance pay for the loss of the one that does burn. It loses sight of its own manifold losses from persons who cannot or do not pay. It loses sight of the advantage, even to a doctor, of a fixed income. It fails lamentably to look at the greater good, which is the public good.

With this attitude of many of the medical profession I have little patience nor will the public long have patience. I will grant that many of the schemes proposed have been chimerical; some of them, fraudulent. Most of their promoters have aimed at cheap medical service, not efficient medical service. I will grant and I will work for the proposition that the medical profession should be properly compensated and that matters should be so arranged that the patient shall have free choice of doctors. I will grant the advantage of such elements of competition in medical practice as tend to develop the best service. But granting all these things and balancing these and the other valid objections against invalidity insurance over against the good which would come from a thorough-going system, I find the scale coming down heavily on the side of the latter; and I am sure that the same conclusion will be reached by most, if not all, physicians who open-mindedly study the working of the insurance laws in Germany, Denmark and Great Britain. The objections of the British Association have not been warranted, for the brief experience with the new law shows that the compensation of the profession has been appreciably increased.

This question has not assumed large proportions in this country, but I am certain that it will do so in the not distant future. It is manifestly impossible to discuss it adequately on this occasion. It will demand the highest wisdom to secure a system adapted to our peculiar conditions. Like all the other topics which I have touched on, I bring this before you for thoughtful study as you go about the practice of your profession.

The second form of cooperation for the care of the individual patient which I mentioned was that of the doctors themselves. Of course the consultation is a long-established attempt at such cooperation; but that its usefulness is very limited, as ordinarily carried on, there can be no doubt. Whatever good there may be in consultation (except in hospitals), has accrued almost exclusively to the wealthy patient. Surely medicine will never be rightly adjusted in the social order until every man, woman and child is entitled to receive and actually does receive the best oversight and treatment that science is able to afford. This is not the case at the present time.

There are various reasons for this condition. One of the most potent is the ever-widening specialism in medicine. Of the inevitable necessity of this movement there can be doubt. No one can hope to compass the tremendous volume of medical fact or become proficient in all the valuable diagnostic, therapeutic and operative procedures. Specialism in any line of endeavor, whether medical or otherwise, tends to narrow the field of activity and of vision. Concentration increases intensity at the expense of distribution. It acts in human activity exactly as in the electrical transformer: if you increase the voltage, you decrease the amperage. The practical point is that for certain patients the work of several experts is necessary, if the best results are to be obtained. How well has medical practice succeeded in adjusting itself to secure these benefits for the individual case? In my judgment it has not succeeded. It is true that in the best charity hospitals the very poor individual receives the services of all the necessary specialists and all the modern appliances. For the small group who can pay large fees, there is possibility of getting what is needed by reference from specialist to specialist and the paying of separate fees for each element of service. The doctors may think that this procedure works well. In my opinion it does not work well even for the doctors, taking their interests broadly; and from the patient's point of view it is subject to the criticism that they interpret the multiplicity of fees as repeated payments for a single service. They look on specialism as a new device for padding their pocket-books. But the fatal fallacy of the present arrangement is its inapplicability to the great class of independent poor, who cannot by any possibility meet the repeated demands for even moderate fees. They simply go without the service; and of course, the doctors cannot render it.

Now it seems to me that a hopeful movement toward the solution of this difficult problem is found in those combinations of experts, however arranged, by which the sick man becomes the patient of the group, which renders the service needed for a single charge. The system and efficiency secured by these organizations are almost uniformly admitted. You may criticize the scheme as destroying the individuality of the doctor's work. I cannot see that it does; but even if this were true, I believe that something better, namely, an improved service, is substituted. You may make the charge that these institutions tend to commercialize medicine. Again I cannot see your ground for argument. I believe, on the contrary, that their organized systems of arranging compensation are more just than the haphazard methods of the ordinary practitioner. If the system of fee, that is, of charge proportionate to the financial ability of the patient, is in any way or anywhere defensible, then these organizations certainly administer the system with as full regard to the means of the individual patient as do medical men who work as separate units.

But let us throw to one side these more or less specious and minor criticisms and ask whether the examples of medical cooperation meet a social need? Do they bring to the individual patient what he ought to be entitled to, namely, all the expert service that his case demands? Do they accomplish this end better for the average patient, all things considered, than the same experts would do working separately? If so, common sense must justify this departure from time-honored (which often means worm-eaten), custom. However, as with all other problems which I have discussed, I do not ask you to accept my views in regard to this question. I ask you first to recognize the problem. But I ask you to do more than recognize. I ask you to study it in the light of the broadest spirit and fullest knowledge attainable.

There are various further topics that I had hoped to bring to your attention. There is the suggestion of regular medical examinations for persons in health, a problem which some of the life insurance companies are experimenting with.

The army of the pick and shovel, of the saw and trowel, far overshadows in its importance to the nation the army of the rifle and sword. Yet the latter army takes every precaution through its medical organization to keep the individual soldiers at the highest point of efficiency, while the great army of industry moves forward with the savage individualism of the hoards of Attila. Medical science so far has been content to follow in the rear and pick up the wounded. Should it not go in advance as did the medical officers of the army of Japan? We all know that the true function of medicine should be to keep people well. They should be regularly watched for evidence of disease and given timely advice and treatment. We know how present economic conditions, medical ideals and popular psychology tend actually away from rather than toward the proper relation of medical science to the social body. We read Samuel Hopkins Adams' interesting story of the "Health Master" and are filled with regret that only in fiction is such a character to be found. It is a hopeful sign, however, that people are beginning to think of these things.

This topic I pass with a word. Others as important I omit altogether. I have said enough to fulfil my intent, which was to show that there are many things concerning which you must "learn what is true in order to do what is right." You are going forth to work. Twenty, thirty, perhaps forty years of active service stretch out in front. At the end, what? Will you be like Sylvius?—a great physician, but one whose epitaph is the epitome of self-centered existence.

> Here lies Sylvius who never did anything unless he was paid for it. If he could do it, he would charge you for reading these lines.

No, I cannot think of you as like Sylvius. You are forward-looking men, alive with the spirit of the times, kindled with altruistic enthusiasm. You know that there is something to your profession and something possible to your lives, besides appendicitis and typhoid and pneumonia; something besides office hours and calls and long rides over country roads; something besides bills receivable and bills payable; something besides the individual patient with his idiosyncrasies and his pains. There is world interest; there is world importance. There is room for the scientist's logic, the soldier's heroism, the stateman's wisdom, the reformer's fervor, the poet's imagination. There is room for much living and much thinking. The world with all the centuries wrinkling its forehead; humanity with its accumulated accomplishments; art with its visions of ecstasy and beauty; science with its hard-worn hoards of learning; all are as new to you as the flowers of Eden were to Father Adam. Go forth and strive. There is

> Something hidden. Go and find it. Go and look behind the Ranges,
> Something lost behind the Ranges. Lost and waiting for you. Go.

THE NEGLECT TO PROVIDE FOR THE INFANT IN THE ANTITUBERCULOSIS PROGRAM

ALFRED F. HESS, M.D.
NEW YORK

In the warfare against tuberculosis we should consider ourselves particularly fortunate in possessing full knowledge of the cause of the disease which we have to combat and a fairly complete knowledge of its mode of transmission. Probably the greatest advance which has been accomplished in this field during the past few years has been our clearer conception in regard to the time of life when infection takes place—the realization that tuberculosis is contracted to a large extent in early childhood. This brief report is written from this point of view, with the purpose of raising the question whether we are making use of this new knowledge—whether our methods of prophylaxis have advanced or have been reconstructed to harmonize with it. We know not only that infection occurs during early childhood, but that it occurs frequently in infancy, and that the younger the child the graver the prognosis of the disease; infants infected when under 1 year of age rarely recover, and those between the ages of 1 and 2 years have a very poor outlook for life. With these statements as a preface—facts which now constitute every-day medical knowledge—we may well inquire what is being done in the antituberculosis campaign to prevent infection at a time of life when it not only occurs frequently, but runs so grave a course? What measures have been added to the sanatorium treatment, to the provisions for home care, or what new organized effort has been launched, which promises to safeguard our infants against tuberculous infection?

This question recently has presented itself for solution under the following circumstances. At the Tuberculosis Preventorium for Children at Farmingdale, N. J., two hundred children are cared for, who give a positive tuberculin reaction, but show no clinical signs of tuberculosis. They range in age from 4 to 14 years, and are selected by the tuberculosis dispensaries of New York City from households in which some member of the family is tuberculous, frequently suffering from open tuberculosis. These two hundred children, at the present time, happen to represent 120 families, as, in many instances there are several from one and the same family. A chance occurrence, the visit to the preventorium of a sickly tuberculous mother carrying her infant in her arms, suggested that it would be of interest to inquire how many more infants under the age of 2 years there were in the 120 homes of the children at present in the institution. It was a simple matter to secure this information. Not only did we have the data on the admission-cards, but we could question the children themselves. By this means we were able to obtain far more accurate information than if we had undertaken a larger investigation embracing children no longer in the institution.

The result of our inquiry showed that *there were forty-two infants under 2 years of age in these 120 homes* A most startling situation! The accompanying table gives a summarized picture of the individual families. From this table it will be seen that in very many cases there is more than one member in the home suffering from tuberculosis; that frequently the tuberculous disease is in the second stage; that in many families there are two infants exposed to infection; that even when the tuberculous individual has left the home for a sanatorium, this removal has occurred so recently that the infants have been exposed for many months; that the number of children in these families is unusually large, averaging somewhat over five to a family.

It is apparent that this investigation portrays a very serious condition of affairs, and that unless some protective measure is taken, these infants are doomed to tuberculosis, leading to illness, to the dissemination of infection, and to death. What shall be done in the matter? How shall we protect them and the community? The first relief measure which suggests itself, probably, is to send the tuberculous mother or father to a sanatorium. We find in practice, however, that it is feasible in only a few cases to safeguard the home by sending away the tuberculous member of the family. The mother cannot be spared from the household, for the very reason that she has the infant to care for, as well as because there are usually other children. (It will be noted that the mother constitutes the tuberculous member in over one-half of our cases). The father, although tuberculous, is still in many instances an important source of income for the family; he cannot desert them. There is therefore the necessity, in a large proportion of the cases, of focusing our efforts in another direction, of striving to send the infant out of harm's way. A few who are orphans or half orphans can be committed to orphan asylums; a few others, provided the breadwinner is ill, may be looked after by some existing child-caring institution. If, however, the family is not destitute, if there is a source of income sufficient to keep it afloat, it will be difficult to place the child in an institution. The babies' hospitals can offer no refuge; they must refuse to fill their beds with infants who are not sick. At a loss how to solve the problem, and feeling that there might be some unexplored avenue of escape, I appealed to the Commissioner of Public Charities, Mr. John Kingsbury, for advice. He answered in the main as follows: "In so far as I have been able to gather, and I have caused diligent inquiry to be made, at the present time we have no agency or institution in this city equipped to care for the particular class of children you describe."

In order to have the question concretely in view, it may be well to cite a case in point. Let us examine

DATA OF THE 42 INFANTS IN THE HOMES OF CHILDREN NOW AT THE PREVENTORIUM

Case No.	Initials of Child	Age in Years	No. Children in Family	Tuberculous Members	Stage of their Disease	Location, Etc.
1	G. B.	1	8	Father	2	In sanatorium 2 months
2	G. B.	2	..	....	..	....
3	W. B.	1	8	Brother-in-law	2	Home
4	I. C.	6/12	7	Mother	2	Home
				Father	2	Home
				Sister	2	Sanatorium
5	H. C.	1½	5	Sister	2	Home
6	B. C.	1	3	Mother	1	Home
7	G. D.	10/12	4	Father	2	Sanatorium 4 mos.
				Mother	2	Sanatorium 7 mos.
8	B. D.	2	6	Father	2	Home
9	H. G.	2	3	Mother	1	Home
10	L. G.	2	5	Father	?	California
11	I. G.	2	7	Aunt	1	Home
12	P. G.	2	7	Mother	1	Home
				Brother	1	Home
13	H. G.	1/12	5	Father	1	Home
				Mother	1	Home
14	H. G.	2/12	7	Mother	1	Home. Children mentally deficient
15	B. J.	2	7	Father	2	Home
16	B. J.	New-born	..	....	..	....
17	B. K.	2	6	Mother	2	Home
18	B. K.	5/12	..	....	..	....
19	W. K.	3/12	5	Father	2	Home
20	C. L.	2	4	Father	2	Sanatorium 2 mos.
				Mother	1	Home (pregnant)
				Sister	1	Home
21	B. M.	9/12	5	Father	1	Home
				Brother	1	Home
22	B. M.	1½	9	Mother	1	Home
23	B. M.	1½	..	......	..	....
24	B. M.	5/12	..	....	..	....
25	L. M.	2	6	Mother	1	Home
26	....	1/12	..	....	..	....
27	L. P.	1¼	3	Father	2	Home
				Sister	1	Home
28	S. R.	2	4	Father	1	Home
29	S. R.	8/12	..	Mother	1	Home. Four children died
30	F. R.	1 1/12	3	Mother	2	Home
31	F. R.	3/12	..	Father	1	Home
32	P. S.	1 5/12	6	....	..	An arrested case
33	E. S.	2	5	Father	3	In sanatorium?
34	R. S.	2	4	Mother	1	Home
35	R. S.	1	..	....	..	....
36	M. S.	1½	4	Father	1	Home
				Mother	1	Home. Do not care to be burdened with children
37	J. S.	2	3	Father	..	Died of tuberculosis at home year ago
38	H. S.	1	3	Mother	2	Home. Cannot leave on acct. of infant
39	M. S.	9/12	5	Mother	1	Home
40	F. W.	2/12	4	Mother	2	Home
41	M. S.	9/12	5	Mother	1	Home
42	J. S.	1½	3	Father	2	Home

more fully the instance which we referred to above, and which led to this investigation:

> Family H. S. There are two children at the preventorium for the past three months who are doing very well. The father appears to be in moderately good health and earns $10 a week. The mother looks weak and sick and has tuberculosis in the second stage. On being asked why she did not enter a sanatorium, she replied that she could not leave home on account of her 15-months-old baby, which she was carrying in her arms. Further questioning elicited the fact that she had been well until this last child was born, and had weighed about 135 pounds; that since this time she had failed and now weighed about 100 pounds. The recency of active tuberculosis in her case probably explains how it came about that the two older children did not succumb to infection in infancy. This infant evidently could not be sent to a hospital or to an orphan asylum; at best it could be referred to some other institution for a short period. In order to provide for this emergency, we at once admitted the infant to the preventorium. This provision enabled the mother to leave her home and to enter Sea View Hospital a few days later.

It would seem that we have here encountered a weak link, not only in the antituberculosis movement, but in the infant welfare work as well — for these two fields of effort overlap or rather dovetail at this point. Unless infection of young children is adequately guarded against, what basis is there for any hope of eradicating tuberculosis in succeeding generations? Many of these infants will die; others will live to constitute a large proportion of the patients who are destined to waste away in their homes or to fill the preventoriums and the sanatoriums in the generation about to come. How then are we to provide for these infants? The suggestion to protect them in institutions is rejected as impracticable; it is argued that mothers will not part with their healthy infants, and that we cannot exercise coercion. Although this contention has from time to time been made, I know of no experience to substantiate it. In view of the seriousness of the situation, of the thousands of infants who must be exposed to infection in the city of New York, it would seem worth while to ascertain, by means of a vigorous experiment, whether tuberculous parents will give their children up to institutional care. I believe there is a considerable number who will be sufficiently wise to make this sacrifice when the danger lurking in a tuberculous home is adequately explained. The weak and sickly mother suffering from tuberculosis will be particularly inclined to temporarily renounce her infant, and it is in her case that a separation is most urgently demanded. *Tuberculosis preventoriums for infants should be established.*

To make a beginning in this direction it may be advisable to assign wards for this purpose in existing institutions (infant asylums, preventoriums or sanatoriums) rather than to establish new institutions. In this way it would be feasible to have, in many instances, infant and parent in the same institution. These infants need not be sent to the country, to be treated by means of a rigorous fresh air régime; they may be adequately cared for in or near the city, where their parents have the opportunity of visiting them from time to time. Preference might be given at the outset to urgent cases, to infants surrounded by open tuberculosis, to cases in which a tuberculous mother is constrained to remain at home in order to care for her infant, or in which there are two or more members of the family suffering from tuberculosis. The minimum length of stay may be fixed provisionally at one or two years.[1] The details of organization, however, cannot be formulated in advance. The object of this paper is rather to urge those engaged in tuberculosis work, as well as those active in the field of infant welfare, to make some provision for a large number of infants who are now abandoned to their fates, destined to die or to swell the ranks of the tuberculous poor in the coming generations.

16 West Eighty-Sixth Street.

THE HEART IN THE ACUTE INFECTIONS *

ROBERT N. WILLSON, M.D.
PHILADELPHIA

More and more generally is the fact being realized that the heart suffers in greater or less degree in every acute systemic infection. We may safely go further and state that there probably occurs no instance of perfect cardiac recovery from an acute micro-organismal invasion. This must not be taken to mean that there are no clinical recoveries from the cardiac complications of the acute infections. It does indicate, however, that a scar results from every attack on the cardiac musculature and on the endocardium and pericardium, and that cardiac scars spell weakness, not strength.

Not infrequently, especially in the acute diphtheritic involvements, the pulse will become mean and thready, cyanosis is extreme, sweating profuse, nausea and vomiting appear, the blood-pressure (systolic as well as diastolic) falls, and the patient may die with all the phenomena of shock. Such a patient dies primarily from structural damage to the cardiac mechanism, due to the toxin circulating in the blood. McCallum[1] has shown that there are other factors at work, also, since the insufficient heart may be revived even after the death of the patient, and resume its function for a time. But the microscope reveals lesions amply sufficient to account for every failure in the performance of duty.

It is well to remind ourselves that in certain instances of clinical recovery the heart not only fails to regain its full integrity, but dates its first clinical insufficiency from the acute systemic attack. The picture may be classified as the debility of convalescence, or as a postfebrile anemic state, or what not. The important point is that too seldom is the condition recognized as a real loss and lack of ability to maintain cardiac muscular tone.

Probably all of the acute infections are micro-organismal, if not bacterial in origin. Even syphilis may now be classed within such a category. Rheumatism also seems ready to fall in line, perhaps as a genuine streptococcemia, possibly as a symptom-complex variably dependent on now one, now another causal germ. The pneumonias acknowledge no one bacterium as their invariable underlying factor. Tuberculosis, like influenza, almost always appears as a mixed infection. Measles, small-pox and scarlatina appear to be drifting, more by dint of fashionable tendency than by reason of any definite demonstration, into the streptococcic fold. Only diphtheria, typhoid fever and syphilis—already mentioned—furnish clinical cardiac conditions distinctive, even in a measure, of a definitely recognized organism and demonstrably characteristic lesions.

---

[1] In many instances it will be found that the *problem* of infection in the home has solved itself in the course of a shorter period, the tuberculous member having died or entered a sanatorium, or the disease having become arrested.

* Read at the annual meeting of the Pennsylvania State Medical Society, Pittsburgh, September, 1914.

[1] MacCallum, W. G.: Am. Jour. Med. Sc., 1914, cxlvii, 37.

Roughly speaking, we may generalize or group the harmful effects of the active agents in all of the acute diseases into those of (1) acute true myocarditis, (2) myocardial atony due to degenerative change, (3) toxic paralysis or paresis of the cardiac muscle and nerve fibers, (4) endocarditis (valvular and mural), (5) simple and mediastinopericarditis, and (6) muscular and valvular insufficiencies with dilatation of the cardiac chambers.

I make no reference here to the sclerotic changes that may or may not have had their beginnings in an infectious thrombo-arteritis of the vasa vasorum during the acute disease. Nor may we stop to consider the many post-convalescence developments that may easily be traced back to the acute infection of weeks or months previous. I shall not even dwell on the central involvement of the vasomotor system, the importance of which has, until the recent reaction, been exaggerated beyond all warrant. I have shown in another place[2] that in the pneumonias, at least, the diastolic blood-pressure (the best index of vasomotor tone) maintains a fairly normal level. Schwarzmann[3] has recently come to similar conclusions with respect to eighty cases of the various acute infectious diseases.

ACUTE TRUE MYOCARDITIS

True inflammatory involvement of the myocardium varies in type and extent in the acute infectious diseases from the simplest edematous infiltration or localized round-cell infiltration to the characteristic nodules of Aschoff, found in the hearts of subjects suffering from genuine rheumatism and chorea. There may be evidences in the myocardium of attacks antedating that which proves fatal, such as areas of old fibrous tissue, side by side with new inflammatory processes, or such as the scars and fibrous patches representing healed Aschoff's bodies, accompanying newly formed and typical giant-cell colonies. If the heart has previously been free from disease, the musculature of the left ventricle is most likely to suffer. It may, however, be the right ventricle wall, or the muscular ring supporting the aortic and mitral valves, or the atrioventricular bundle, or that less commonly known tract of transmitting fibers described by Kent as existing in the right lateral cardiac wall. Here, there, or everywhere the lightning may strike and leave its fingermark.

The vital point to which I would here call attention is that whether the infection be a pneumonia, a gonococcemia, a rheumatism (so-called), an invasion by the *Streptococcus mitis* (*viridans*), or by the homely staphylococcus, if it becomes general and severe, the cardiac musculature invariably suffers and the microscope will reveal lesions competent to explain many features of the clinical picture. Once this fact is appreciated as a general principle, we shall cease emphasizing the all-importance of a loss of vasomotor tone, especially since, as in most pneumonias, the vasomotor tone is not low. Moreover, we shall be more likely from the beginning to watch intelligently and closely for the early signs of cardiac irritability, and later for indications of cardiac distress. A weak, irregular pulse, air hunger, pain that cannot be definitely attributed to pericarditis, precordial oppression, will all have a new significance when we realize that the main lesion even in rheumatism is of the myocardium, not of the valves, and is just as likely to be permanent as if it were valvular.

Acute syphilis is as likely to cripple the myocardium as the valvular structures, and to leave unmistakable evidence of the nature of the process in the presence of the spirochete. The changes may be interstitial or parenchymatous or both, and may vary in grade from an edema to fatty degeneration. Except in the late fibroid lesions the spirochete will usually be found. Very rarely does the heart of syphilis escape being the heart of myocardial disease.

In a brief paper it is manifestly impossible to cover thoroughly the ground suggested by the myocarditis of acute infectious disease. One can, however, and should have instantly brought to mind, when diphtheria presents itself, the fatty degeneration of the fibers and the paralysis of the cardiac nervous mechanism, even more vividly than the localization of the membrane in the pharynx, larynx and nose. In typhoid fever the hyalin or waxy degeneration (Zenker) of the fibers is not to be forgotten. In the pneumonias, I have elsewhere shown that we may confidently expect any or every grade of degenerative change. In influenza many patients die in their convalescence as the result of fatty myocardial change. In true rheumatism we find not only any or all of the changes mentioned above, but in addition the suggestive, if not pathognomonic nodules of Aschoff in and around the adventitia of the small subendocardial vessels, in the interstitial substance between the fibers, even in the valve structures themselves.

I have seen two instances of suppurative involvement of the cardiac muscle, both in cases of pyemia, the one an example of extensive suppurative myocarditis, and the other of multiple abscesses of the heart wall. Cases of this sort are always fatal, and are diagnosed by generalization only, or on the necropsy table.

Whether full cardiac recovery follows even the milder grades of infectious inflammation, and whether a heart so involved is ever again quite ready to perform full service, I think we may, on the basis of the foregoing, very well doubt. For ordinary purposes it may answer every need. When the stress comes, just as during the primary acute illness, it may be taxed just a little beyond its capability, even though well within normal limits, and fail the patient at a time in which he needs every reserve force and energy. In the form of atrophied or degenerated fibers or localized areas of fibrosis the heart may preserve its record of the storm. Many a physician has experienced a severe clinical lesson in the loss of a patient owing to sudden cardiac failure when convalescence has seemed almost or quite complete, even when the primary disease has been not oversevere. Weill and Mouriquand[4] have reported a series of such instances in convalescents from scarlatina. In one case, a girl of 15 years died suddenly at stool. Another child, an infant of 18 months, died suddenly when it seemed past all need for worry. The microscope revealed an acute myocardial inflammation as the cause of the fatality. Far more frequently does diphtheria cause such an end.

---

[2] Willson, Robert N.: The Heart in the Pneumonias, The Journal A. M. A., Sept. 19, 1914, p. 981.

[3] Schwarzmann: Centralbl. f. inn. Med., Aug. 1, 1914.

[4] Weill and Mouriquand: Presse méd., Aug. 5, 1911.

It would seem, then, that the heart muscle is of primary interest in the acute infectious diseases, and deserving of more than ordinary concern.

MYOCARDIAL ATONY DUE TO DEGENERATIVE CHANGE

The various forms of degeneration noted in the myocardium of infectious disease have already been briefly mentioned. They all lead to some measure of disability and incompetence, mainly as a consequence of a loss of muscular tone. This quality or function of being fit, or, to use athletic parlance, "on one's toes," is as essential to cardiac equilibrium as it is to the performance of a person's daily work. If he possesses that indescribable something which insures his mental and physical grasp of things, the vital tension that furnishes both energy and endurance, he enjoys the tasks of the day. He is a giant and they are the duties of a Lilliputian. Exactly so with the cardiac muscle. If tone is lacking, every emergency is a new burden. We must not forget, moreover, that the arterial system is simply a continuation of the structural architecture of the heart. That which lowers cardiac muscular tone is almost certain to have the same influence on the muscle fibers in the walls of the arteries and veins.

Each step toward myocardial degeneration, cloudy swelling, hypertrophy, perhaps at its side atrophy of the fibers, fatty change, hyalin metamorphosis, replacement fibrosis, calcification—all of these represent incapacity through inability to sustain tone. In addition there is likely to be a diminished supply of an infected and chemically altered blood. It is little wonder that tone and accomplishment are both impossible under these conditions.

TOXIC PARALYSIS OR PARESIS OF THE CARDIAC MUSCLE AND NERVE FIBERS

There are many indications that either or both the vagus and the sympathetic cardiac systems of nerves may be embarrassed or completely paralyzed by the toxins of the acute infectious diseases. It is well known that drugs that ordinarily affect and stimulate the vagus branches to the heart fail to exert their usual influence under the shadow of an active toxemia. Physiologic conditions are abnormal. More and more frequent are the reported instances of so-called functional heart-block in pneumonia, in rheumatism, in syphilis, and in other acute toxemias. In some of these instances the lesion has been shown to be a round-cell infiltration of the auriculoventricular connecting fibers.

As long ago as 1905 Mackenzie[5] called attention to the occurrence of partial heart-block in influenza. In other temporary cases in which there has been clinical recovery, the disturbing influence has appeared to be wholly toxic, and has seemingly been exerted through both the muscular and the nervous tissues. In one of Routier's rheumatism cases[6], recently reported, a heart-block disappeared under the influence of atropin; in a second case, one of pneumonia, without treatment. In a case of heart-block in rheumatism reported by Gosse,[7] the loss of function persisted, in spite of treatment, for eighteen days. Occasionally temporary heart-block is noted in a case which at length comes to necropsy, when there appears to be an entire absence of explanatory and causative lesion. It would seem, however, that a more diligent search might discover evidences that escape the ordinary observer.

Auricular fibrillation and flutter are not rare phenomena in the toxic heart. While not essentially toxic disturbances, as is demonstrated by their appearance in a dying (normal) heart after removal from the laboratory animal's body, there is no question that the toxins of the acute infectious diseases may and do bring the same conditions to pass. Sutherland[8] has just published an interesting study of auricular flutter in acute rheumatic carditis, and of the clinical signs indicating the presence of this condition.

ENDOCARDITIS (VALVULAR AND MURAL)

Rheumatism (tonsillitis, arthritis, chorea) and syphilis are recognized as the two most frequent causes of valvular heart disease. We are, however, just now in the transition stage with respect to the meaning of "rheumatism," and its relation to the streptococcus in general, to the *Streptococcus viridans* in particular, and to many other forms of subacute and acute bacterial endocarditis. Typhoid fever, pneumonia, influenza, diphtheria, tuberculosis, occasionally involve the valves, but show a marked predilection for the myocardium. Scarlatina very frequently is found to have antedated a valve lesion that appears to have no other explanation. If scarlatina is finally pigeonholed in the category of streptococcic infections, we shall have the needed explanation for this probable etiologic sequence.

We seem bound in the near future to discard the term "rheumatism." Certainly no one has the unscientific privilege of believing, and still less of asserting, as did one critic who wrote to me recently of a number of cases of valvular disease with an entire absence of rheumatic history (arthritis, sore throat, tonsillitis or chorea), "Your cases were rheumatic, I believe,"—I repeat, no one has the privilege of throwing every etiologically obscure case of valvular disease into the rheumatic dump-heap, at least until the pale spirochete has been proved absent, and probably not then. We can and should catalogue the myocardial as well as the valvular lesions that have heretofore been ascribed to "rheumatism" under their proper etiologic classification. Whether or not we shall eventually limit the meaning of the term "rheumatism" to hearts showing Aschoff's nodules remains to be determined. Acute syphilitic lesions of the valves or of the myocardium may, indeed, often be diagnosed by the presence of the *Spirochaeta pallida*. In old and chronic lesions this diagnostic help may not be afforded. The etiologic significance of the other acute infections mentioned above can be ascertained only by a careful clinical following of the heart during the acute attack, and by a comparison with its known previous state.

Whatever the causal factor in a given infectious disease, the endocardial lesion follows one of two or three lines. Either it begins and persists as an inflammatory change in which fibrosis is the ultimate outcome; or vegetative deposits and growths appear; or, finally, the vegetative and ulcerative processes of malignant endocarditis manifest themselves. Any one of the infections may initiate any of the three types of mural or valvular endocarditis, sclerotic, vegetative or ulcerative. Rheumatism and the typically acute diseases (except gonococcemia) tend to the production of the vegetative, recurrent type. Syphilis, on the other hand, leans toward sclerosis from its beginning to its final deformity. More and more clinicians are to be found who believe that in the absence of a known causative factor a valvular lesion of either of the two more chronic types should be suspected of being syphilitic until proved due to some other etiologic influence. In the presence of fibrous arteries in a young person the presumption becomes almost a certainty.

---

[5] Mackenzie: Brit. Med. Jour., 1905, pp. 519, 587, 702, 759, 812.

[6] Routier: Arch. d. mal. du cœur, May, 1914.

[7] Gosse: Brit. Med. Jour., June 20, 1914.

[8] Sutherland: Brit. Jour. Child. Dis., August, 1914.

The endocardial lesion may consist of a filmy lymph deposit on the line of junction of the cusps; or it may result in the stoppage of the passageway by a projecting mass; or the cusps may be shriveled and warped and noduled out of shape and position; or, finally, ulcerative processes may have eaten their way through. Endocarditis may thus constitute a mere baptism, or it may mean a destructive involvement that stops short only when the tissues are consumed.

PERICARDITIS

As the pericardium enjoys the same general blood-supply as the myocardium and the valves, there is little chance of its escaping involvement by any and every infectious process that is blood-borne. Many writers and teachers are skeptical regarding the occurrence of a primary pericarditis. None questions the frequency of the toxemic or of the bacteriemic forms. Indeed, contiguity to the pleura as well as to the myocardium would almost render a primary form of pericarditis unnecessary to explain the origin of the vast majority of instances. Conditions are so favorable to a direct extension of an inflammatory process from one structure to another that this would seem the natural order of events. As a matter of fact, it is an exceptional case of fatality from the acute infectious diseases that fails to show at the necropsy definite evidence of pericardial inflammation. Often a mere fibrinous patch, more frequently also an excess of pericardial fluid, rarely a purulent effusion, it would be almost an anomaly were the pericardium to be found free, when the structures so intimately associated with it are involved.

Pericarditis occurs in children at an early age. Blechmann[9], in studying 500 cases of pericarditis in the London Hospitals, found that 25 per cent. of all occurred earlier than the fifth year, and 50 per cent. before the fifteenth year. The toxemias in rheumatism and in the pneumonias are the most frequent causes, though all of the eruptive diseases contribute to the total. Heretofore rheumatism has been cited as the infection most active in the causation of pericarditis. When, however, we finally learn to discriminate between true rheumatism and other septic arthritides—when, indeed, we discover just what true rheumatism is—we shall probably find that it is not the cause of many cases that have been included under its name. In a series of sixty-seven cases of serofibrinous pericarditis in the University and Bellevue Hospital, Brooks[10] found twenty-six secondary to pneumonia, which led the field as a causative factor.

In early adult life nephritis begins to contribute a very positive percentage of cases. Many of the mediastinal inflammatory conditions also exert an influence It must not be forgotten that the heart and the pericardium rest posteriorly on the esophagus and aorta, and that anteriorly the pericardium is intimately attached to the pleura. In a considerable number of instances of both acute and chronic tuberculosis the pericardium is found at the necropsy the seat of active tuberculous disease. Scarlatina, cerebrospinal fever, influenza, erysipelas and syphilis all contribute their quota—and bear out the assertion that whatever infests the blood-stream finds it difficult to pass the pericardium by.

MUSCULAR AND VALVULAR INSUFFICIENCIES WITH CARDIAC DILATATION

Only a word need be added with regard to the direct etiology as contrasted with the symptomatology of the insufficiencies (muscular and valvular) of the hearts in subjects suffering from the acute infectious diseases.

We were all taught, and later at some time no doubt began to teach, that the dilated heart usually is incompetent as the result of the misbehavior of some one valve or valves. In fact, in the study of both the acute and chronic heart lesions we have been led to overemphasize the importance of the valvular abnormality and to ignore in a measure the significance of the covering and substance of the organ. We forget that the same condition or infection has caused both the endocarditis and the myocarditis. To-day it would be well for us all to take up again the study of the histopathology of the heart muscle, not with a view to exaggerating the frequency of cardiac disease, but of placing and locating the point of attack, and appraising the etiologic bearing of the infections to acute involvements of the myocardium.

There is an unfortunate tendency among heart students to teach the needlessness of fear of athletic overstrain or damage to a heart which shows no frank signs of cardiac disease. In the light of this study it would be well worth a young man's time and trouble to have his physician inquire into his past history with reference to the acute infectious diseases, and a possible latent structural insufficiency of the cardiac muscle. We constantly hear of young athletes being hurried from their convalescence from a tonsillitis, or even a typhoid fever, into training, and thence into an eight-oared race or a football match. More than once I have personally come into conflict with a medical director of a school or college who appeared willing to permit some young giant, though already suffering from air hunger and cardiac arhythmia evident to the patient, to engage in athletics no less strenuous than a football contest or a cross-country run.

TREATMENT AND PROGNOSIS

What is the treatment and what the prognosis of a carditis such as one must expect in an acute infectious disease? I would suggest in a word for the acute illness the most perfect possible rest, and the saving of every unnecessary contraction of an organ which we unfortunately cannot ever put to sleep. At the beginning of treatment, an empty, and, for a little time, an "as nearly as possible" sterile gastro-intestinal tube will be the second essential, instead of the frequent attempt to overnourish and feed. Drugs, except opium and possibly atropin, will be of questionable value. If employed at all they should be such as are calculated to subdue and quiet overeffort, rather than incite and excite a lame organ to further exertion. No drug will decide the issue between cardiac competence and collapse. It may be that even the cardiac sedatives and tonics had better be omitted. The most difficult period for the physician will be the convalescence, and the year following the acute illness. If we would conserve the heart muscle and its endocardium it will be of prime importance that all localized foci of infection should be removed from the body. We are just beginning to appreciate the fact that diseased tonsils and adenoids invite a heart lesion, a pulmonary tuberculosis or a pneumonia; that pus tubes or an infected prostate may underlie malignant endocarditis or a joint rheumatism; and that a grumbling appendix may be the cause of arteriosclerosis, myocardial degeneration, arthritis deformans, or varicose veins. In short, it is not safe from any point of view to ignore a chronic focus of disease.

---

[9] Blechmann: Ann. de méd. et chir. Infant., July 1, 1913.
[10] Brooks: Am. Jour. Med. Sc., 1909, p. 796.

Very gradual must be the progress in dispensing liberty and freedom to a convalescent from an acute infection in his venture back toward a normal life. Very thorough and intelligent must be the physician's test of the heart's capabilities before the patient is turned over completely to his own direction and guidance. Long after the acute attack has been forgotten the heart muscle may betray a latent disability that has lingered and escaped suspicion. Fortunate the man or woman who enjoys a full convalescence and a life of uninterrupted health following the damage sustained by the cardiac structures in the infectious diseases of an earlier age.

1827 Spruce Street.

THE INTRADURAL ADMINISTRATION OF MERCURIALIZED SERUM IN THE TREATMENT OF CEREBROSPINAL SYPHILIS *

CHARLES METCALFE BYRNES, M.D.
Instructor in Clinical Neurology, Johns Hopkins University
BALTIMORE

The subject of syphilis in general, and syphilis of the central nervous system in particular, is at present in a transitional state; and it is, therefore, desirable to formulate a tentative classification of the disorders which are to be included under the title of this paper.

In its broader sense, the term "cerebrospinal syphilis" may be so construed as to include every pathologic process within the central nervous system which is of a specific nature. If this broader meaning is adopted, it should be clearly understood what anatomic limitations are to be placed on the central nervous system. Histologically, it could not be said to include more than the true nervous tissue, since the cerebrospinal vessels and meninges, although integral parts of the central nervous system, are not, strictly speaking, neurologic units. Pathologically and clinically, they are, however, quite inseparable; and experience has taught that, for practical purposes, syphilitic affections of the cerebrospinal or central nervous system cannot well be studied independently of the meninges and blood-vessels.

Since these structures may be involved independently or collectively, it has been the custom to treat syphilis of the central nervous system under the following subdivisions: (1) meningitis, secondary or tertiary; (2) cerebrospinal syphilis, which has further been divided into three types, endarteritis, meningomyelitis and gummatous infiltration, and (3) the two parasyphilitic disorders, tabes dorsalis and general paresis. Continued reports on the Wassermann reaction and the recent studies of Noguchi seem to indicate that these so-called parasyphilitic diseases can now be regarded as instances of true syphilitic affections of the nervous system. Consequently, when a diagnosis of cerebrospinal syphilis is made, it is obvious that a multiplicity of pathologic and symptomatic states may be included.

Recent observations by Swift and Ellis[1] and similar personal experiences have led me to believe that it will be helpful to designate the endarteritic group of cases in a separate classification distinct from specific diseases of the cerebrospinal system. It has been observed, in the majority of cases of syphilis in which the neurologic symptoms indicate a vascular disturbance, that the spinal-fluid examination is quite normal. The cell count is only slightly, or not at all, increased, and the fixation test is frequently negative; but the Wassermann serum reaction is generally positive. In my series of cases, these observations have been so uniform that not infrequently it can be predicted, with some assurance, that the spinal-fluid examination will be within normal limits. Naturally, the accuracy of one's prediction will depend somewhat on his ability to distinguish the vascular nature of the affection.

These observations and the demonstrations of the specific organism in the so-called metasyphilitic diseases, together with their determining influence on the form of therapy to be employed, have suggested to me the following classification of syphilitic affections of the central nervous system:

1. Syphilitic meningitis, secondary and tertiary.
2. Cerebrospinal syphilis, including all specific affections in which the nervous tissue itself is directly affected, such as meningomyelitis, gummatous infiltration, tabes dorsalis and general paresis.
3. Cerebrospinal syphilitic arteritis.

To the clinician, this comprehensive use of the term "cerebrospinal syphilis" can hardly be more than confusing unless the particular variety is clearly stated. It is therefore advisable to continue the use of the older terminology, with the understanding that parasyphilis has only clinical significance, and that syphilitic arteritis of the cerebrospinal vessels probably exists without direct invasion of nervous tissues.

With the specific nature of these diseases more clearly established, it was hoped that the use of Ehrlich's new preparation might be the means of securing brilliant therapeutic results. Unfortunately, at first, it was just this class of cases which was thought to offer particular contra-indication to its administration. The hopelessness, however, of many cases seemed to justify the assumption of reasonable risk; so that, in time, this early objection was overcome and salvarsan began to be widely used in all forms of syphilitic nervous affections. While in some instances the improvement was remarkable, there were many cases in which the results were disappointing.

This failure to secure equally promising results in diseases of the central nervous system was not long

---

* Read before the Philadelphia Neurological Society, Oct. 23, 1914.

[1] Swift and Ellis: The Cerebrospinal Fluid in Syphilis, Jour. Exper. Med., 1913, xviii, 162.

in stimulating more diligent efforts to ascertain the cause of this failure and establish, if possible, a more successful mode of therapy. Two probable explanations were readily suggested. Either irreparable changes had taken place in the nervous system, or the drug failed to reach the seat of infection. The first explanation was unsatisfactory, and destined to discourage further hope of progress in this direction. There is, no doubt, an incipient stage from the period of invasion of the central nervous system to the beginning of destructive changes when it might be hoped to arrest the disease by efficient therapy. Although the period of invasion and duration of the incipient stage are undetermined, it has been observed that even in the earliest manifestations of nervous symptoms, intravenous administration of salvarsan is often apparently ineffective. It seemed, then, that the second explanation offered greater encouragement for further investigation; and the first noteworthy contribution in this direction was made by Swift and Ellis[2] when they introduced a method of administering salvarsanized serum directly into the subdural space.

The technic of this method is now well known and the method itself, which was at first received with some skepticism, has lately become quite generally adopted. Unhappily, just as intraspinal therapy appeared to be gaining recognition, it received a severe blow from the unfortunate experiences on the western coast. Whether this was a determining factor or not, it appears to be true, at present, that the earlier enthusiasm regarding this form of intraspinal therapy is somewhat diminished. While the real value of the method has been questioned, I believe there can be little doubt that some form of direct therapy is desirable. If the infection is localized within the central nervous system, and it can be demonstrated that drugs given by the usual methods do not reach the seat of infection, it is obvious that the adoption of a direct method of administration is to be encouraged.

Numerous parallel studies on the Wassermann reactions in the serum and spinal fluid, together with the increased globulin and lymphocytes in the spinal fluid, seem to indicate that the central nervous system not infrequently shows evidences of specific infection, while the extraneural tissues, as represented by the negative Wassermann reaction in the blood, have apparently escaped. With a local infection so isolated from the systemic circulation that its nature could not be determined by the usual serum reactions, it was logical to assume that substances introduced into the circulating blood might not reach the seat of infection.

The studies of C. D. Camp[3] on the spinal fluid of seventeen patients who had received intravenous doses of salvarsan established the fact, in his case at least, that no evidence of the drug could be detected in the spinal fluid. The fluid was examined at variable intervals after treatment, and in only one case, after large and repeated doses, was there any evidence of arsenic. Others, however, have reported its presence in very minute quantities. Since the physiology of the spinal fluid and its relation to the vascular system is still undetermined, any explanation of these negative findings must be more or less problematic. As a matter of fact, such observations awakened a more lively interest in a direct form of therapy and encouraged my belief that the Swift-Ellis method is a step in the right direction.

While my earlier experiences with this method were most encouraging and were quite parallel with those recorded by Swift and Ellis, continued observation soon taught me that their method, although most promising, is not all that is to be desired. From a clinical and laboratory point of view there were unquestioned evidences of its usefulness, and fortunately, in my experiences, no alarming consequences.

The manner in which salvarsanized serum was supposed to be effective was an early subject for discussion. It was thought that the arsenic had undergone some change within the circulatory system which rendered the serum preparation spirocheticidal. On the other hand, those who were skeptical questioned the efficacy of the method altogether and maintained that the improvement in clinical symptoms was entirely due to the intravenous administration; while the reduced cell count and globulin and fixation tests in the spinal fluid could be accounted for by the withdrawal of spinal fluid and dilution of the remaining portion by the injected serum.

However this may be, it does not require extensive mathematical knowledge to understand that 12 c.c. of serum (the original amount advised by Swift and Ellis) removed from a patient who has received only 0.6 gm. of salvarsan must contain an infinitesimal amount of either the altered or original arsenical preparation. This, it seems, is the most forceful argument against the adoption of this form of intraspinal therapy, and the subject is admirably treated in a current article by Sachs, Strauss and Kaliski[4] From the chemical analyses of Benedict on ten specimens of blood removed from fifteen to forty-five minutes after intravenous injection of salvarsan, these authors have made some interesting calculations. Only from 0.00004 to 0.0001 gm. of metallic arsenic could be detected in 20 c.c. of whole blood, and from these figures it was estimated that blood removed three-quarters of an hour after administration of salvarsan contained practically no free arsenic in the serum.

After almost a year's experience with the original Swift-Ellis method, it occurred to me that more effective action might be secured if a larger quantity of some specific drug were introduced into the subdural space. Even a hasty review of the literature soon taught me that the direct introduction of unchanged salvarsan in any appreciable quantity could not be done without serious risk to the patient. Wechselmann,[5] and later, Marinesco,[6] had used neosalvarsan in aqueous solutions, but the results were doubtful and the reactions severe. Within the same year, Ravaut[7] began the use of unchanged neosalvarsan intraspinally, and a few months later Marie and Levaditi[8] made similar experiments in the treatment of general paresis, with disappointing consequences. Subsequently, Ravaut[9] improved his technic slightly by using hypertonic solutions in freshly distilled water, by which he asserted that he obviated the unpleasant irritative effects of the injection. In April of the same year,

---

[2] Swift and Ellis: New York Med. Jour., 1912, xcvi, 53.

[3] Camp, C. D.: Jour. Nerv. and Ment. Dis., 1912, xxxix, 807.

[4] Sachs, Strauss and Kaliski: Modern Methods of Treatment of Syphilis of the Nervous System, Am. Jour. Med. Sc., 1914, cxlviii, 693.

[5] Wechselmann: Deutsch. med. Wchnschr., 1912, xxxviii, 1446.

[6] Marinesco: Ztschr. f. phys. u. diät. Therap., 1913, xvii, 194.

[7] Ravaut: Deux cas de syphilis nerveuse Traité par les injections intrarachidiennes de mercure et de neosalvarsan, Gaz. de hôp., 1913, lxxxvi, 1061.

[8] Marie and Levaditi: Bull. et mém. Soc. méd. d. hôp. de Paris, Nov. 18, 1913.

[9] Ravaut: Ann. de méd., 1914, i, 49.

Wile[10] introduced this revised technic in America and used it without unpleasant results in two cases. He injected from 1 to 4 drops of a 6 per cent. aqueous solution of neosalvarsan intraspinally (equivalent to from 3 to 12 mg. of neosalvarsan). It has been further suggested by Marinesco and Minea[11] that the arsenical preparation be added in vitro to the patient's serum, and they report the adoption of this method in twenty cases, but the results were, on the whole, discouraging.

The whole question of intraspinal arsenical therapy is very wisely and cautiously summarized in an editorial[12] of The Journal almost a year ago, which, in my opinion, is quite acceptable at the present time. The instability of these complex arsenical preparations and their irritative and toxic properties make their direct introduction into the dural sac an extremely hazardous procedure, and my desire to make further studies in this direction was not encouraged by the experience of others.

It was no new departure to think of introducing mercury into the subdural space. Irrigation of the spinal canal with 1:30,000 mercuric chlorid solution had already been practiced as a postoperative measure, and later, Ravaut[7] reported the injections of mercurial salts into the dural space for the treatment of cerebrospinal syphilis. His technic, however, and exact dosage are not clearly stated, and the laboratory studies are incomplete. He reports two cases. The first was treated by intraspinal injection of 2 drops of a 1:1,000 mercuric chlorid solution. The only unpleasant after-effect was slight increase in headache. Three days later the patient left the hospital and did not return for further study or treatment.

The second case, which was treated with mercuric cyanid, received intraspinally 2 drops of a 1 per cent. solution. The cyanid was chosen because it was thought to be a very active salt, rich in mercury, and from animal experimentation less apt to produce local irritation because of its lowered coagulative properties. The reaction in this instance, however, was pronounced. A few minutes after administration the patient complained of pains and cramps in the legs. These were followed by severe muscular contraction which began in the feet, ascended to the trunk and arms and later involved the whole body. Trismus was pronounced. The contractions were of five or ten minutes' duration, and on the following day most of the irritative symptoms had subsided. An examination of the spinal fluid four months later showed considerable reduction of the lymphocytes and a negative Wassermann.

These discouraging results with the direct introduction of mercurial salts convinced me that they were scarcely less toxic, in appreciable doses, than the more unstable arsenical preparations. If mercury were to be used at all it is evident that a preparation must be obtained which is therapeutically active, and at the same time possesses comparatively low toxicity and local irritative action.

The fact that many patients who came to me for the Swift-Ellis treatment had already received thorough courses of mercurial therapy suggested that they might be receiving along with the salvarsanized serum a mildly impregnated mercurialized serum.

A series of experiments was then begun in which fifteen patients suffering from syphilitic diseases of the nervous system were divided into three groups of five each. The several groups were given active mercurial treatment by the following methods: The first group received inunctions, the second daily intramuscular injections of the biniodid in oil, and the third mercuric chlorid and potassium iodid by mouth. All were carried to the point of saturation, when blood was withdrawn and serum obtained for chemical analysis.

The serum was sent to Drs. Penniman and Browne, analytic chemists of Baltimore, with the request for a quantitative estimate of the mercurial content. Specimens of spinal fluid were also obtained for similar analysis.

On completion of the chemical analysis, Dr. Browne sent the following report on technic and results: The mercury was extracted and converted into mercuric chlorid and the quantity estimated according to the well-known Nessler color reactions. While the analysis showed slight variations in the amount of mercury present, in general, these investigations would indicate that (1) the serum of patients treated by inunctions showed a slightly higher mercurial content than that from the other two groups; (2) the average mercurial content of serum from all three groups was approximately 0.0000059 gm. per cubic centimeter, and (3) the spinal fluid in two instances showed only a questionable trace of mercury which was too small to be estimated. The report is concluded with the following caution:

> The difficulties in estimating such minute quantities are so great that I wish to remind you that these figures must not be accepted as absolute. In an endeavor to find the limits of accuracy in this work, I made a solution of blood albumin and added a known quantity of mercury (0.000058 gm.). I recovered from the solution by this method 0.000047 gm., or 80 per cent. of the amount taken.

While it would be absurd to entertain the idea that a patient's serum could, by this means, be sufficiently impregnated with mercury to render it of therapeutic value, these analyses convinced me that mercury is present in the circulating blood in amounts approximately equal to the arsenical content after salvarsan therapy, and that in the majority of cases it is not detected in the spinal fluid. Evidently, then, many patients who were being treated with salvarsanized serum were receiving at the same time a serum of low mercurial content, but in too small amounts to possess any therapeutic value or furnish any information as to its local action and toxicity; and it seemed reasonable to conclude that a preparation of mercury similar to that supposed to exist in the circulating blood would offer many advantages for intraspinal administration.

When an inorganic salt of mercury comes in contact with protein matter a coagulative process occurs, in which the insoluble albuminate of mercury is formed; and the occurrence of this reaction led me to believe that it might account for some of the unpleasant symptoms following the direct introduction of inorganic salts of mercury into the subdural space. If mercury exhibits this affinity for the protein molecule it would seem advisable to make use of a preparation in which this affinity is already satisfied. The albuminate, which is supposed to exist in the circulating blood, seemed to answer these requirements. Although its toxicity may not be less than that of the inorganic salts, since definite knowledge concerning the physical state of the albuminate ion is wanting, it was thought that it might be less irritating, and especially so if administered in a serum menstruum.

---

[10] Wile, U. J.: The Technic of the Intradural Injections of Neosalvarsan in Syphilis of the Nervous System, The Journal A. M. A., April 11, 1914, p. 1165.

[11] Marinesco and Minea: Bull. de l'Acad. de méd., 1914, lxxviii, 259.

[12] Deaths Following Injection of Neosalvarsan in Los Angeles, editorial, The Journal A. M. A., March 21, 1914, p. 935.

Since the manufactured albuminate on the market is difficult to obtain, unstable and insoluble, it was decided that more satisfactory results might be obtained by adding a mercurial salt directly to human serum. The precipitated albuminate which is at first formed is readily soluble in an excess of albumin, so that on the further addition of serum a perfectly clear solution is obtained. By fractional precipitation, it was determined that approximately 0.022 gm. (⅓ grain) of mercuric chlorid, in solution, may be added to 2 c.c. of serum before precipitation is complete, and that it is necessary to add 4 c.c. more of serum in order completely to dissolve this precipitate. In other words, 6 c.c. will hold in solution 0.022 gm. (⅓ grain) of mercuric chlorid converted into the albuminate.[14]

Obviously, then, a perfectly clear solution of mercury albuminate in blood-serum can be obtained in which the mercurial content is larger than that desired for therapeutic purposes. Consequently, I determined to make use of such a serum for intraspinal administrations. At first the dose of mercury was extremely small and was determined according to body weight, the average tolerance for mercury when administered intramuscularly, and the proportion between the volume of circulating blood and spinal fluid. By cautiously increasing the dose of mercury, it was found that 0.0013 gm. (1/50 grain) of mercuric chlorid and even 0.0026 gm. (1/25 grain) could be safely administered when added to the prepared serum. Perhaps even larger quantities may be given, but I have found the smaller amounts quite effective.[13]

TECHNIC

The technic for the preparation and administration of the serum is similar to that employed in the Swift-Ellis method, except that no drug is administered before withdrawing the blood.

1. Sufficient blood is withdrawn to yield from 12 to 30 c.c. of serum. The larger amount is obtained if concentrated serum is to be used. After the blood has coagulated the serum is pipetted, and if necessary,
2. Centrifugalized for twenty minutes.
3. If diluted serum is to be used, to 12 c.c. of the centrifugalized specimen is added 1 c.c. of a solution of mercuric chlorid in freshly distilled water so made that each cubic centimeter contains 0.0013 gm. (1/50 grain) of mercuric chlorid.
4. To the serum thus prepared is added sufficient quantity of normal salt solution to make a total volume of 30 c.c. If the concentrated serum is used this step is omitted.
5. It is heated at 56 C. (132.8 F.) for half an hour, and
6. Administered, by gravity, at body temperature.

Since the desired amount of mercury is readily soluble in the diluted serum I can see no special reason for employing the concentrated preparation.

In administering the serum, I have adopted the method followed by Swift and Ellis. With the patient lying in bed, lumbar puncture is done, pressure readings are made, and spinal fluid withdrawn until the pressure falls to 30 mm. The serum is then administered and the foot of the bed elevated about 8 inches for half an hour.

CLINICAL RESULTS

At the present writing I have the records of thirty-two patients with syphilis of the nervous system who have been treated by this method. The records have been collected from my private practice and from the Sheppard and Enoch Pratt Hospital (Towson, Md.) where, through the kindness of Dr. E. N. Brush, permission was obtained to have Drs. Sargent and Asper of that institution use this technic on the material at their disposal.

Of the 32 cases there are 13 of tabes dorsalis, 2 of taboparesis, 3 of cerebrospinal meningomyelitis and 14 of general paresis. In general, the cases of tabes and meningomyelitis have shown the most marked improvement although, in a few instances, general paresis has been distinctly benefited. Since it would be just as instructive, and certainly less tiresome, to the reader, to make general deductions from the series of cases as a whole, I shall not burden him with a detailed account of individual cases.

The reaction following the administration of mercurialized serum is usually mild. There is some pain in the legs for six or twelve hours, slight nausea, rarely vomiting, and a moderate rise of temperature. All of these symptoms generally subside within thirty-six hours. I have not observed the sphincter disturbances sometimes seen after the use of salvarsanized serum, nor has there been any evidence of renal disturbance or other untoward symptoms.

The improvement in clinical symptoms has been similar to that observed in the Swift-Ellis method. In most instances of locomotor ataxia, there has been decided relief of the pains, the gait has improved, and gastric symptoms have been distinctly alleviated; in others, there has been little or no change in the clinical condition. A tabetic and a patient with taboparesis showed such marked improvement that they deserve brief mention. When first seen, the tabetic was annoyed by bladder disturbances, slight sexual disorders, and inability to walk without assistance. After four treatments all symptoms were markedly improved, and I have lately heard that he is now conducting a profitable business and is the father of a healthy child. In the case of taboparesis, in which there were such marked mental features that the patient could not be left alone, it was decided to try first a thorough course of mercury by intramuscular injections. When the limit of tolerance was reached, there was practically no change clinically, and it was decided to begin intraspinal therapy with mercurialized serum. Following the first administration there were evidences of improvement in the mental state and this improvement continued after each treatment. In all, five intraspinal injections were given, and on the patient's discharge from the Sheppard and Enoch Pratt Hospital Dr. Sargent made the following note: "The patient's mental condition is practically normal, all grandiose ideas have disappeared, expansiveness is gone, the gait is improved, and he has gained 19 pounds in weight." Six months later the patient was seen by Dr. Hamburger and myself, and his mental condition was so clear that it was decided not to commit him to an insane institution, where his family wished to send him because of the attention required on account of his tabetic symptoms.

---

[13] After this article was prepared for publication, a letter was received from Mr. Campbell, of the H. K. Mulford Co., containing a report of Dr. Pittenger's experiments in their laboratory. At my suggestion Mr. Campbell kindly directed that studies be made on the toxicity and local irritative action of mercurialized serum. It has been determined that by intravenous administration this serum is as toxic as the inorganic salts of mercury, but when administered intradurally it can be given in much larger doses.

[14] These proportions are only approximate. No doubt a much larger quantity of mercuric chlorid may be added.

The spinal fluid has, in every instance, shown a marked decrease in the cellular elements, and in many cases, the diminution has occurred more rapidly than is observed after the use of salvarsanized serum. The globulin is in general diminished, but the Wassermann reaction, as in the use of salvarsan, appears to be less readily affected. In the thirty-two cases a negative reaction was obtained in only twelve. This low percentage may be accounted for by the fact that the number of treatments was determined largely by the cell count and clinical symptoms; and since these usually showed evidences of improvement after relatively few treatments — usually five — further treatment was not insisted on. Perhaps a more prolonged course might have increased the percentage of negative Wassermann tests.

CONCLUSIONS

1. While it is not declared that mercurialized serum alone is the only treatment that is necessary in syphilis of the central nervous system, I believe it is equally, if not more, efficacious than salvarsanized serum in the local treatment of these diseases.

2. The immediate reactions following its administration are, in general, not so severe as those after the use of salvarsanized serum, and the cell count in the spinal fluid appears to be more quickly reduced.

3. Since preliminary medication is not required, the blood may be obtained at any time; and because of the greater stability of the mercurialized serum it may be prepared at leisure and kept in sealed flasks until it is convenient to administer it.

4. In certain cases of cerebrospinal syphilis in which the serum Wassermann is negative but in which there are all the indications for intraspinal treatment, it has impressed me as unfortunate that the patient had to be subjected to the discomforts of an intravenous administration of salvarsan merely for the purpose of securing a preparation for intradural injection. This objection does not arise in the use of mercurialized serum. It is true that in many cases both the blood and spinal fluid show evidences of infection, and in such instances I have not felt that the intravenous dose of salvarsan could justly be withheld, so that I have frequently given the combined salvarsanized and mercurialized serum intraspinally.

5. Owing to the greater stability of the mercurialized serum, it is hoped that a method may be devised by which a permanent preparation can be dispensed in sealed ampules and thus simplify the whole technic of intraspinal therapy. While it may be unwise to entertain the idea of using a foreign serum, it is not unlikely that human serum may be obtained in sufficient quantities for this purpose.

Nativity of Parents and Infant Mortality.—Investigation of deaths of infants from so-called congenital disease, including prematurity, congenital debility, convulsions, malformations and injuries at birth, by the Bureau of Child Hygiene of New York City disclosed a definite relation existing between the proportion of congenital deaths and the nationality of the parents. Only three nationalities were considered as the proportion of the others was too small to be of consequence. The Italian and Russian-Austrian proportions of deaths are very low as compared with their proportions of births, while the United States and "All Others" are relatively high. The percentage of congenital deaths among the United States group is 32.3; all others, 43.6; Italians, 14.6; Russian-Austrian, 18.5.

A MORPHOLOGIC AND CHEMICAL STUDY OF THE DOUBLE REFRACTIVE FATS OF THE ADRENALS IN DELIRIUM TREMENS *

EDWIN F. HIRSCH
CHICAGO

Kaiserling and Orgler[1] were the first investigators to call attention to the presence of anisotropic droplets or liquid crystals in the cortex of the human adrenal glands. Herrmann[2] later studied a small number of human adrenals with regard to their content in the doubly refractive substance, and reports it uninfluenced by age, but diminished by wasting diseases. He observed its entire absence once in the adrenals of a 70-year-old woman dying from miliary tuberculosis, and again in the glands removed from a body with long-continued, chronic lung phthisis. The small number of glands studied was not sufficient, however, to permit drawing conclusions regarding the causal relationship between disease and the absence of the anisotropic droplets. White[3] also merely reports the presence of doubly refractile droplets in the adrenals removed from thirty individuals dying from various diseases. Kawamura[4] observed the anisotropic substance in a finely divided form in the cortex of adrenals removed from fetuses and children up to 10 years of age. The abundance of this, he records, is not influenced materially by chronic and acute diseases, but is diminished markedly by sepsis and alimentary intoxications. Kawamura observed no diminution of the doubly refractive substance in disorders of the vessels, obesity, marasmus, tumors and inanition, but on the contrary, in some of these conditions an increase. He confirms Herrmann's observations on its diminution in chronic tuberculosis, and that age does not seem to influence its amount. A diminution of these droplets is recorded by Kawamura in sepsis, typhoid fever, diabetes, and once in chronic nephritis. Weltmann[5] records their diminution in the adrenals removed from persons dying with septic diseases, typhoid fever, severe infectious enteritides, purulent peritonitis, frequently in croupous pneumonia, ulcerative carcinoma, and cavernous phthisis; on the other hand, he found them abundant in atherosclerosis, cirrhosis of the liver, chronic nephritis, generalized passive congestion, cerebral hemorrhage, and encephalomalacia, as well as in subacutely progressing infections. A complete absence of the doubly refractive substance is reported by Mulon and Porak[6] in the adrenals removed from the body of a patient dying with Huntington's chorea. A relatively smaller amount of the adrenal lipoids was found by Landau[7] in phthisis, septic processes, and with many tumors.

Practically all investigators agree in considering the doubly refractive droplets present in the adrenals as lipoids, or, more exactly, esters of cholesterol. According to Kawamura there may be other doubly refractive spheroliths present in fresh tissues, such as the globules in the uric acid infarcts, in part the psammomas, and the prostatic corpora amylacea. These, of course, are not lipoids. Moreover, doubly refractile globules occur in fatty livers, in cloudy swelling of the liver, and have been observed in teased preparations of the central nervous system, especially in diseased softened regions together with myelin droplets or globules, as well as in numerous other pathologic retrogressive processes. In none of these, however, do the droplets lose their double refrangibility with heating. Kawamura summarizes the optical properties of the anisotropic droplets in question as follows: In a fluid state they are doubly refractive; a property lost on heating, to be assumed again with cooling. In tissues fixed with 10 per cent. dilution of liquor formaldehydi they appear as needle-like crystals which are converted by heat into doubly refractive droplets. The relation between the droplet doubly refractive substance in fresh tissues and the crystalline in fixed preparations, he states, is always constant and equal. The same relation is also true on changing the crystalline form into the globular by heat. In the examinations to be mentioned presently these observations by Kawamura have been confirmed repeatedly.

---

* From the Laboratories of Pathology of Rush Medical College and the University of Chicago.

[1] Kaiserling, C., and Orgler, A.: Ueber das Auftreten von Myelin in Zellen und seine Beziehung zur Fettmetamorphose, Virchows Arch. f. path. Anat., 1902, clxvii, 296.

[2] Herrmann, O.: Ueber Vorkommen und Veränderungen von Myelin substancen in den Nebennieren, I. D. Tübingen, 1905.

[3] White, C. P.: *On the So-Called Fatty Degeneration of the Adrenals*, Jour. Path. and Bacteriol., 1909, xiii, 11.

[4] Kawamura, R.: Die Cholesterinesterverfettung, Jena, 1911.

[5] Weltmann, O.: Ueber das doppeltbrechende Lipoid der Nebenniere, Beitr. z. path. Anat., 1913, lvi, 278.

[6] Mulon, P., and Porak, R.: Un cas d'absence d'enclaves lipo-cholesteriques dans la surrenale humaine (choree de Huntington), Compt. rend., Soc. de biol., 1912, lxxiii, 281.

[7] Landau, M.: Nebenniere und Fettstoffwechsel, Deutsch. med. Wchnschr., 1913, xxxix, 546.

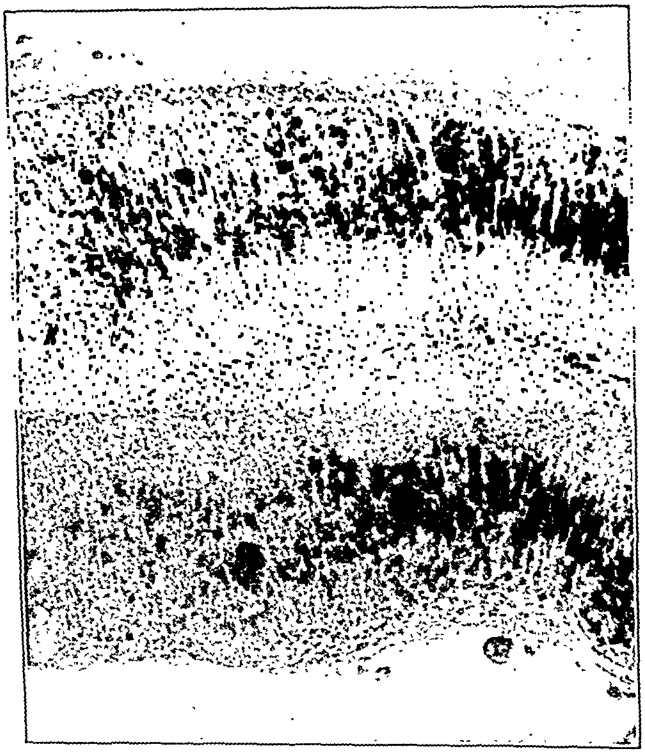


Fig. 1.—Normal adrenal section stained with sudan III; Nicol prisms uncrossed; × 38.

Rosenheim and Tebb[8] analyzed chemically the lipoids from the adrenal and isolated a mixture of fatty acids and cholesterol esters, as well as small amounts of sphingomyelin and phrenosin. Adami and Aschoff[9] sought to determine the chemical nature of these anisotropic droplets by preparing substances artificially with doubly refractive properties, and observed that the following may contain doubly refractive myelin figures, and sometimes also droplets: (1) phosphatids, among which is lecithin; (2) soaps of the fatty acids; (3) cholesterol esters; (4) solutions of cholesterol in phosphatids, in fatty acids and in fats; (5) solutions of cholesterol esters in fats. Of these, only the cholesterol esters easily formed permanent emulsions which contained doubly refractive droplets. Kawamura pursued the same method of investigation on a large number of chemically pure lipoids, as well as with artificial lipoid mixtures. Aside from the cholesterol esters, he observed doubly refractive globules in sphingomyelin and phrenosin isolated both from the brain and from the adrenals. Also with cephalin-cholesterol and cephalin-cholesterol-oleic acid mixtures, lecithin, and sodium oleate. The cholesterol-fatty acid mixtures tend to form myelin, a reaction dependent on the dissolved cholesterol, for the doubly refractive properties appear only with a relatively rich cholesterol content. Cholesterol-glycerol mixtures, glycerol esters, cholesterol-palmitic acid esters, myelin, the fatty acids, soaps, and cephalin have no doubly refractive properties.

In the examination of the bodies of persons dying from delirium tremens, Dr. E. R. Le Count, one of the coroner's physicians in Chicago, found alterations so regularly in the cortices of the adrenals that it was decided to ascertain, if possible, the reason for such changes. The changes consist in a more or less striking diminution of the yellow color normally present in the cortex. This diminution is frequently a narrowing of the yellow, band-like cortex combined sometimes with its irregular disappearance, producing an uneven yellow edge bordering the medullary region into which the substance of the medulla apparently extends, sometimes reaching entirely to

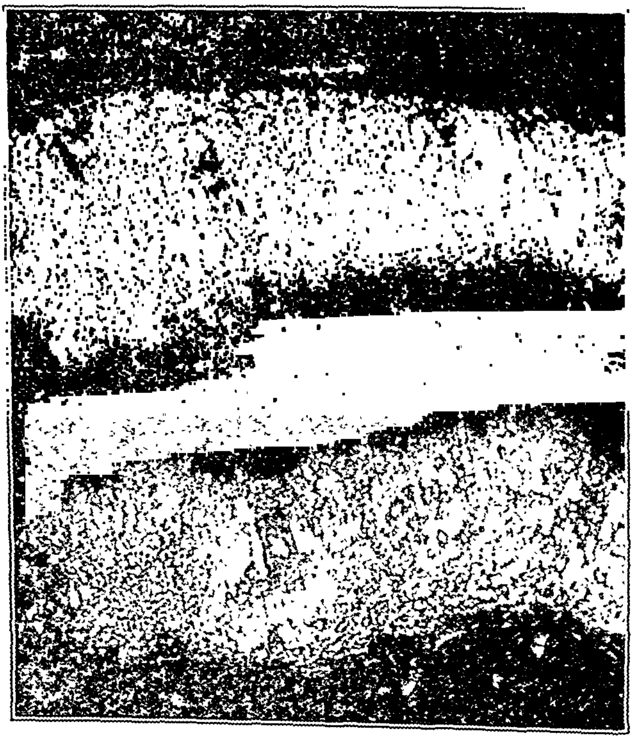


Fig. 2.—Same field illustrated in Figure 1 with the Nicol prisms crossed; the light portions represent the distribution and abundance of the double refractive lipoids; × 38.

---

[8] Rosenheim, O., and Tebb, M. C.: On the Lipoids of the Adrenals, Proc. Physiol. Soc. London, 1909, xxxviii, p. liv.

[9] Aschoff, L.: Zur Morphologie der lipoiden Substanzen, Beitr. z. path. Anat. u. z. allg. Path. (Ziegler's), 1910, xlvii, 1.

the capsular margin. In very marked instances, the entire cortex assumes a reddish-brown color with only occasional areas of yellow distributed at irregular intervals, or there may seem to be an entire absence of all the yellow substance. These changes are grossly very interesting, and so regularly encountered in delirium tremens that when they are absent, as a rule, some other influence than simply the poisonous action of the alcohol manifested as delirium tremens is found contributing to death.

The adrenal glands removed for the purpose of study were weighed after the perirenal fat had been dissected away carefully, and then fixed in 10 per cent. dilution of liquor formaldehydi. After a few days, thin transverse segments of the fixed glands were frozen and sectioned. Some of the sections were mounted directly on slides in glycerol; others were stained from ten to fifteen minutes with sudan III, and then mounted. Preparations were made in this manner from practically all the adrenal glands studied, warmed to 80 C. (176 F.) in a drying oven, and afterward cooled. As controls for this work, the adrenals from persons meeting sudden death, such as results from gunshot wounds or other severe injuries, were used, and sections prepared in a similar way. The micropolariscopic examination was made soon after, using a very low magnification (28 diameters), and artificial illumination in a dark room to insure uniformity. The adrenals from thirty-four persons dying from delirium tremens were compared with the controls, and in practically every instance the doubly refractive droplets in the delirium tremens adrenals were diminished slightly, moderately, markedly, very markedly, and sometimes in a given area were absent entirely (Table 1).

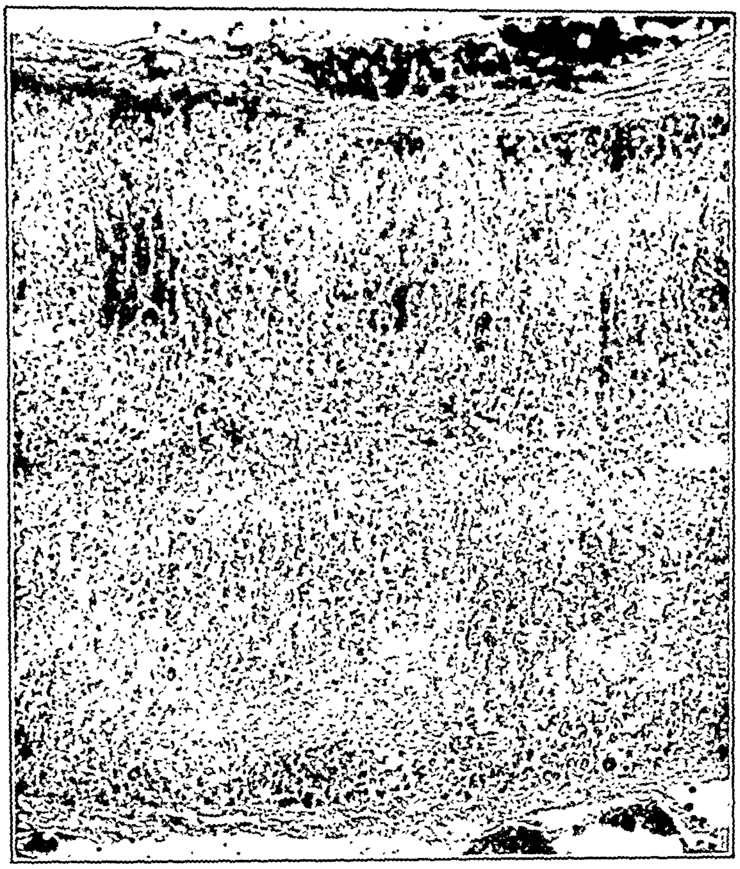


Fig. 3.—Delirium tremens adrenal section stained with sudan III, illustrating the diminution of the lipoids staining with this reagent; Nicol prisms uncrossed; compare with Figure 1; × 38.

Further evidence that the cholesterol content of the adrenals is diminished in delirium tremens was obtained by quantitative chemical estimation. Seven adrenals removed from persons dying with delirium tremens and two controls were analyzed by the following colorimetric method, which, with slight modifications, is the process described by Autenrieth and Funk.[10] While such a colorimetric method may be open to criticism from the point of view of quantitative accuracy, nevertheless, it is probably far better for making comparative estimations of cholesterol than are only rough color determinations such as might be obtained in test-tubes with the Salkowski color reaction.

TABLE 1.—DELIRIUM TREMENS ADRENALS

No.	Double Refractive Lipoids Diminished	Age	Under Observation, Days	Clinical and Necropsy Notes*
1	Moderately	61	14	Small red kidneys; syphilis.
2	Moderately	—	4	An alcoholic for 24 years; marked inflammation of the air passages; *slight sclerosis* of the brain.
3	Moderately	—	19	Was delirious when admitted to the hospital; syphilis; healed empyema; *slight pulmonary* tuberculosis.
4	Moderately	51	—	Tuberculous scars of the thorax; *early bronchopneumonia.*
5	Moderately	—	—	Syphilis; pseudolobar bronchopneumonia.
6	Moderately	33	—	*Delirium tremens clinically* and anatomically.
7	Very markedly	43	—	Delirium tremens complicated by *trauma; extensive* bronchopneumonia.
8	Moderately	35	20	Anatomically only delirium tremens.
9	Very markedly	45	6	Fractured rib; acute pleuritis; syphilis.
10	Moderately	61	—	Chronic nephritis; syphilis; bilateral bronchopneumonia.
11	Very slightly	—	3	Marked pulmonary tuberculosis.
12	Moderately	35	20	Developed lobar pneumonia shortly before death; anatomically lobar pneumonia; chronic nephritis; syphilis.
13	Moderately	35	—	Bilateral bronchopneumonia.
14	Very markedly	35	—	Clinically delirium tremens with early bronchopneumonia.
15	Markedly	35	6	Anatomically delirium tremens and bronchopneumonia.
16	Slightly	37	19	Slight latent pulmonary tuberculosis; marked bronchopneumonia.
17	Moderately	32	13	Chronic alcoholism.
18	Very markedly	38	12	Huge empyema; *chronic nephritis;* syphilis.
19	Very slightly	40	2	Anatomically delirium tremens.
20	Very slightly	38	14	Syphilis.
21	Markedly	38	12	Slight bronchopneumonia; chronic nephritis.
22	Very slightly	47	3	Healing duodenal ulcer; otherwise delirium tremens.
23	Very slightly	39	14	Developed delirium tremens in the hospital.
24	*Moderately*	—	—	Syphilis; chronic nephritis; slight [illegible]nchopneumonia.
25	Very markedly	—	2	M [illegible] syphilis.
26	Slightly	—	3	Ch[illegible] c nephritis; slight bronchopneumonia.
27	Very markedly	—	39	Bronchopneumonia.
28	Moderately	—	7	Chronic alcoholic; bronchopneumonia.
29	Markedly	—	5	Scalp wound; *anatomically* delirium *tremens.*
30	Very markedly	—	2	Anatomically delirium tremens.
31	Very markedly	—	1	Chronic alcoholism; *atrophic* cirrhosis *of* the liver.
32	Very markedly	39	13	Slight bronchopneumonia.
33	Very markedly	45	26	Infected scalp wounds.
34	Moderately	44	4	Anatomically delirium tremens.

NORMAL ADRENALS

The adrenals removed from the bodies of 17 persons meeting sudden death contained an abundance of *doubly refractive* lipoids. Ten of these persons met death as a result of skull fractures; four from gunshot wounds; two from severe trauma, and one from a broken neck.

* I wish to express my appreciation of the kind assistance rendered by Dr. C. E. Sceleth, *physician in charge* at the House of Correction Hospital, Chicago, as well as my gratitude for the suggestions offered by Drs. E. R. Le Count and H. G. Wells.

The fixed adrenals were taken from the 10 per cent. dilution of liquor formaldehydi, the excess fluid blotted off, and

---

[10] Autenrieth, W., and Funk, Albert: Ueber kolorimetrische Bestimmungsmethoden, München. med. Wchnschr., 1913, lx, 1243.

3 gm. of the ground tissue weighed into a 100-c.c. Erlenmeyer flask. Thirty c.c. of a 25 per cent. potassium hydroxid solution were added, and the tissue saponified on a steam bath for three to four hours. After cooling, the mixture was transferred to a 100-c.c. separatory funnel, extracted once with 30 c.c. of chloroform, and four times with 20 c.c. From 5 to 10 gm. of anhydrous sodium sulphate were added to the combined chloroform extracts to clear the solution, then the mixture was thoroughly shaken, and finally filtered in a dried 100-c.c. graduated, glass-stoppered cylinder through a dry filter, the volume finally being made up by adding chloroform to the filter. One-tenth gm. of cholesterol was dissolved in 50 c.c. of chloroform in a 50-c.c. volumetric flask, a solution used as the known in the determinations about to be mentioned. Five c.c. of the unknown extract were transferred from the stoppered cylinder to a 10-c.c. graduated centrifuge tube by means of a 5-c.c. pipet, 2 c.c. of acetic anhydrid and 0.1 c.c. of concentrated sulphuric acid added, the tube stoppered and shaken. Two c.c. of the known solution were transferred in a pipet to another 10-c.c. graduated centrifuge tube, 3 c.c. of chloroform, 2 c.c. of acetic anhydrid, and 0.1 c.c. of concentrated sulphuric acid added as specified above. Both tubes were then placed in a water bath at from 32 to 35 C. (89.6 to 95 F.) and left there in the dark for fifteen minutes, after which time a flocculent precipitate which usually appeared in the unknown solution was thoroughly sedimented by centrifuging. At this time both tubes contained a fluid having varying intensities of a bright green color, and the solutions were transferred to the chambers of a Duboscq colorimeter for comparison. Control tests were also made using 5 c.c. of chloroform, 2 c.c. of acetic anhydrid, and 0.1 c.c. of concentrated sulphuric acid.

The results of these determinations are given in Table 2.

TABLE 2.—CHOLESTEROL CONTENT OF NORMAL AND DELIRIUM TREMENS ADRENALS BY QUANTITATIVE CHEMICAL ESTIMATION

	Cholesterol per Gram of Moist Adrenal Tissue (Fixed in 10 per cent. Liq. Form. Dil.), Gm.	Condition of the Double Refractive Lipoids
Normal	0.0595	Abundant
	0.1066	Abundant
Average	0.0830	
Delirium tremens	0.0206	Very markedly diminished
	0.0222	Markedly diminished
	0.0166	Very markedly diminished
	0.0113	Very markedly diminished
	0.0233	Markedly diminished
	0.0242	Markedly diminished
	0.0193	Markedly diminished
Average	0.0196	

TABLE 3.—CHOLESTEROL CONTENT OF PATHOLOGIC ADRENALS REPORTED BY CHAUFFARD, LAROCHE AND GREGANT

Pathologic Condition	Number of Adrenals	Cholesterol per 1,000 gm. of Moist Weight Gm.
Renal insufficiency	3	61
		77.45
		40.32
Average		59.59
Chronic nephritis	7	34.64 to 79.68
Average		52.88
Acute infections:		
Typhoid fever	..	6.50
Pneumonia	..	4.70
		20.17
Puerperal sepsis	..	4.10
		4.28
Subacute meningitis	.	1.16
Tetanus	..	1.58
Average		9.58
Tuberculosis	13	2.08 to 31.15
Average		13.50
The low figures corresponding with febrile conditions and severe cachexia range between 2.08 and 5.85 gm., those for the fibroid tuberculosis between 12.8 and 31.15 gm.		
Myeloid leukemia	1	6.50
Asystole	1	17.50
Liver involvement	4	
Nodular carcinoma without jaundice		5.00
Cholelithiasis with icterus		10.20
Biliary calculi with carcinoma of the gall-bladder and icterus		16.80
Carcinoma of the gall-bladder with icterus		15.60
Average		12.35

Chauffard, Laroche and Gregant[11] report the cholesterol content of thirty-six adrenal glands removed from bodies with various pathologic lesions. The method employed in making these determinations is not given. Table 3 contains the results of their study.

Their figures given for the cholesterol content of the adrenals in renal insufficiency and chronic nephritis correspond very closely with those considered normal in this study. Quite probably these disorders exert very little influence on the cholesterol content of the adrenals.

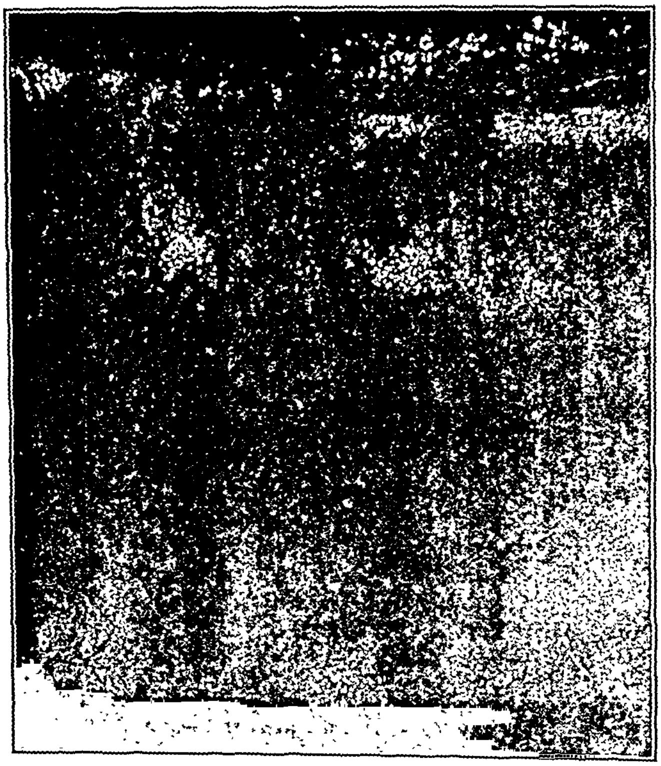


Fig. 4.—Same field illustrated in Figure 3 with the Nicol prisms crossed; observe the striking *diminution* of the double refractive lipoids as well as their irregular distribution; × 38.

The physiologic functions of the adrenals, according to Landau, are not concerned with lipoid formation, but rather the adrenal cortex contains an increased lipoid content under different conditions which have in common only a retention of the lipoids, or are characterized by an abnormally increased lipoid formation, the opposite holding true in conditions accompanied by a lipoid-poor cortex. The variations in the lipoid content are to be considered as secondary to changes in the lipoid content of the body or of the individual organs. With certain limitations, such as inanition and infections, the cholesterol esters behave themselves like the total lipoid content of the adrenals, and probably also are carried to the adrenals and there stored up.

---

[11] Chauffard, A., Laroche, Guy, and Gregant, A.: De la teneur en cholesterine des capsules surrénales dans différents états pathologiques, Compt. rend. Soc. de biol., 1912, lxxii, 23.

Inasmuch as acute toxic processes in general are associated with a diminution of the double refractive lipoids of the adrenals, the inference lies close that in delirium tremens the body is flooded by some acutely toxic substance, the nature and origin of which is purely hypothetic at present. That something more than the alcohol itself is concerned in producing these changes is derived from the repeated examination of adrenals removed from the bodies of chronic alcoholics without delirium tremens, in which the alterations described were not present.

AUTOGENOUS SERUM IN THE TREATMENT OF PSORIASIS*

HOWARD FOX, M.D.
NEW YORK

The *treatment* of certain obstinate diseases of the skin by human serum is a therapeutic measure of comparatively recent date. In view of some of the favorable reports on this method it seems strange that it has not been given a more extended trial, especially in America. Although the present report is limited to the treatment of one disease, psoriasis, by a single method of serum therapy, it may be of interest to say a few words on the general subject of the use of human serum in treating skin diseases.

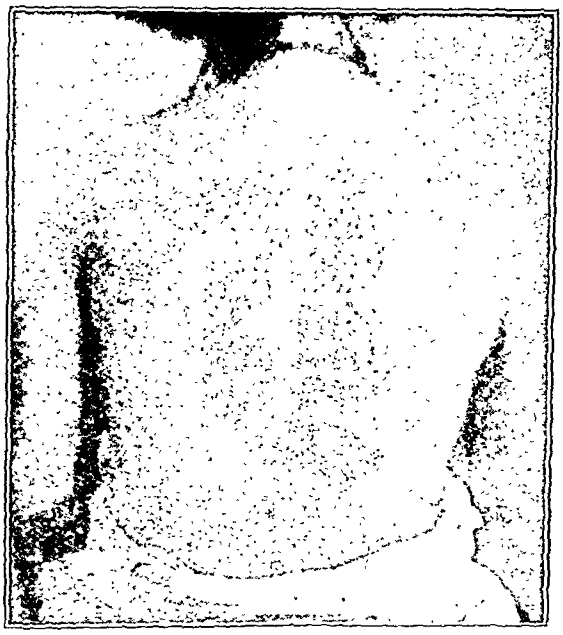


Fig. 1.—Case 5, before treatment; duration, one year.

In December, 1910, a communication was published by Mayer and Linser[1] on the result of treatment of a case of herpes gestationis by injections of serum obtained *from another* pregnant woman. The theoretic basis which led Mayer to suggest this therapeutic trial was as follows: During pregnancy certain poisonous substances are supposed to enter the maternal circulation from the placenta and act as antigens which in the normal case are neutralized by the formation of antibodies. *In certain* cases, however, such antibodies are not produced, the patient suffers from auto-intoxication, as shown clinically by eclampsia, hyperemesis and various distressing forms of skin disease. To supply the supposed lack of antibodies, Mayer suggested that the serum of another healthy gravida should be employed. The patient selected to test this theory was a pregnant woman, aged 24, presenting a severe type of so-called herpes gestationis. She was given 10 c.c. of serum intravenously, obtained from a healthy nonpregnant woman, without showing any improvement. Three days later a second injection from a pregnant woman was given and was followed by an immediate improvement, the eruption disappearing entirely at the end of two weeks. Other good results from this apparently specific treatment of toxic dermatoses of pregnancy were later reported by Mayer,[2] Freund,[3] Linser,[4] Fetzer,[5] Veiel[6] and Rübsamen.[7]

Following his success in treating urticaria of pregnancy, Linser[8] was led to try the serum injections in urticaria and other skin diseases having nothing to do with pregnancy. Good results were reported in twenty-four cases of strophulus and urticaria papulosa of children, in prurigo, pemphigus and hemorrhagic diseases of the skin and mucous membranes.

Heuck[9] later reported good results in urticaria and strophulus of children, and in pruritus senilis. Cases of dermatitis herpetiformis showed decided improvement; slight temporary improvement was noted in cases of neurodermatitis, while the treatment failed to be of value in weeping eczema.

A cure of a case of pemphigus following a single injection of human blood was reported by Praetorius.[10] Six cases of this obstinate disease were treated by von Zumbusch[11] partly by injections of human blood and partly by serum, with no result in some and improvement or cure in others.

The *report* of Ullmann[12] on the serum treatment is less favorable, poor results being obtained in seven cases of dermatitis herpetiformis and no result in eczema of children, though on the other hand, comparatively good results were noted in pruritus.

While all of the foregoing cases were treated with human serum or blood obtained from other individuals (homologous serum) Spiethoff[13] experimented with injections of the patient's own serum (autogenous serum), using this method alone and in combination with homologous and foreign serums. By such combinations of treatment he obtained good results in prurigo, dermatitis herpetiformis, chronic *urticaria, pruritus and psoriasis.* Other allied therapeutic measures that have been tried in the past four years include the treatment of various dermatoses by autogenous blood (Ravaut,[14] Spiethoff[15]), homologous blood (Praetorius), serum from the umbilical cord (Franz[16]) and the serous contents of pemphigus bullae, reinjected in patients with this disease (Holobut and Lenartowicz[17]).

---

* Because of lack of space this article is abbreviated in The Journal by omission of a table. The complete article appears in the author's reprints. A *copy* of the latter will be sent by the author on receipt of a stamped addressed envelope.

[1] Mayer, A., and Linser, P.: Ein Versuch Schwangerschaftstoxikosen durch Einspritzungen von Schwangerschaftsserum zu heilen, München. med. Wchnschr., 1910, lvii, *2757.*

[2] Mayer, A.: Normales Schwangerenserum als Heilmittel gegen Schwangerschaftsdermatosen im besonderen und Schwangerschaftstoxikosen uberhaupt, Zentralbl. f. Gynäk., 1911, xxxv, 350; Weitere Erfahrungen [illegible] von Schwangerschaftstoxikosen mit normalem [illegible] 1911, xxxv, 1299.

[3] Freund, R.: Serumtherapie bei Schwangerschaftstoxikosen, Med. Klin., *1911,* vii, *371.*

[4] Linser, P.: Ueber Hauterkrankungen bei Schwangerschaft *und* deren Heilung, Dermat. Ztschr., 1911, xviii, 217.

[5] Fetzer: Die therapeutische Verwendung von normalem Schwangerenserum nebst Versuch einer Erklärung auf *experimenteller* Grundlage, Deutsch. Gesellsch. f. Gynäk., 1911, xiv, 712.

[6] Veiel, F.: Ein Beitrag zur Serumbehandlung der *Schwangerschaftsdermatosen,* München. *med.* Wchnschr., 1912, lix, 1911.

[7] Rübsamen, W.: Weiterer Beitrag zur Schwangerschaftsserumtherapie der Schwangerschaftstoxikosen, Deutsch. med. Wchnschr., 1913, xxxix, 931.

[8] Linser, P.: Ueber einige mit Serum geheilte *Fälle von* Urtikaria, Med. Klin., 1911, vii, 136; Ueber die therapeutische Verwendung von normalem menschlichen Serum, Verhandl. d. Cong. f. inn. *Med.,* 1911, xxviii, 125; Ueber die therapeutische Verwendung von normalem menschlichen Serum bei Haut- und innerlichen Krankheiten, *Arch. f.* Dermat. u. Syph., 1912, cxiii, 701.

[9] Heuck, W.: Erfahrungen über Behandlung Hautkranken mit Menschenserum, München. med. Wchnschr., *1912, lix, 2608.*

[10] *Praetorius, G.: Pemphigus* malignus durch einmalige intravenöse Blutinjektion geheilt, München. med. Wchnschr., *1913, lx, 867.*

[11] Von Zumbusch, L.: Serum *und Blutinjektionen* bei einigen Fällen von Hautkrankheiten, Wien. med. Wchnschr., 1913, xxxviii, *2348.*

[12] Ullmann, E.: Ueber die therapeutische *Anwendung von* normalserum bei juckenden Dermatosen, Arch. f. Dermat. u. *Syph.,* 1913-14, cxviii, 125.

[13] Spiethoff, B.: *Zur therapeutischen* Verwendung des Eigenserums, München. med. Wchnschr., 1913, lx, 521.

Previous to Spiethoff's publications the result of the serum treatment of psoriasis had not been favorable. Heuck found the treatment of no value in this disease and thought that a beneficial action was not to be expected. In the treatment of psoriasis by autogenous serum, Spiethoff states that in addition to failures he obtained a noteworthy result in two cases. In one case of extensive psoriasis geographica "the patches became pale and flat after the third injection." In another case the involution of the patches began after the first injection of 13 c.c. of inactivated autogenous serum and disappeared after five injections. It was necessary in this case, however, to use local treatment by salves in addition, before a complete disappearance of the eruption was obtained. Spiethoff also mentions a patient with psoriasis applying for treatment for a very severe dermatitis, probably from the use of chrysarobin. Serum treatment was given, after which the dermatitis subsided and the psoriasis disappeared. It may be of interest to add that in the treatment of three cases of psoriasis by autogenous blood, Ravaut failed to see any change in the eruption, although the itching was lessened.

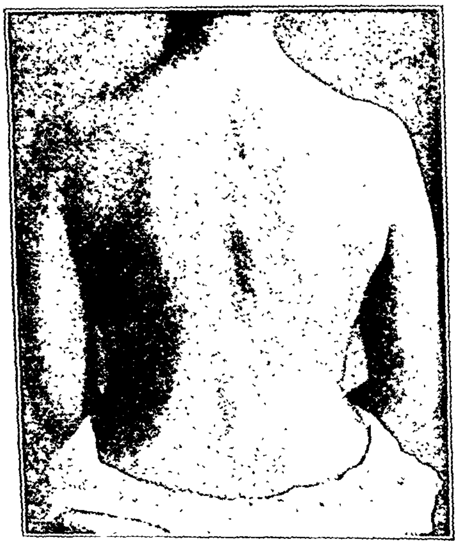


Fig. 2.—Case 5, three weeks after treatment.

Gottheil and Satenstein[18] were the first in this country to experiment with the treatment of skin diseases by human serum, confining their work entirely to the use of active autogenous serum. In their first report on this subject, they stated that "the apparent results from the serum treatments were most noticeable in the psoriasis cases." In a later communication[19] they stated that their results in twelve cases of this disease had been "uniform and extremely satisfactory." In all of these cases the serum treatment was followed by local inunctions of a weak chrysarobin ointment.

My own experience with autogenous serum in psoriasis is derived from the treatment of twenty-eight patients, of whom seventeen were females and eleven males, varying in age from 11 to 54 years. The different forms of the disease such as the guttate, nummular and diffuse were all represented and included varying grades of severity. The duration of the eruption varied in the different cases from 2 to 45 years. All of the patients were treated in an ambulatory manner, with the exception of two, who remained in the hospital for two weeks. The majority belonged to the dispensary class and with few exceptions were fairly faithful in carrying out the treatment.

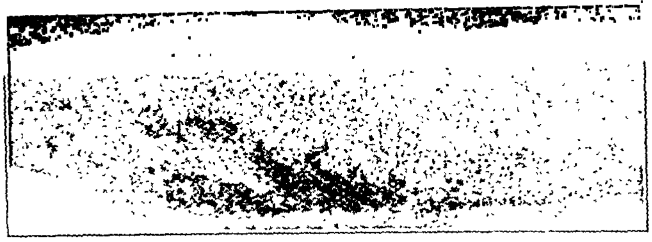


Fig. 3.—Case 10, before treatment.

In all except one case, at least three injections of serum were given, at an average interval of from three to five days. This was immediately followed by the local use of a 10 per cent. chrysarobin ointment, the action of which was increased in certain cases by covering the skin with rubber cloth. No internal medication was given and no particular stress was laid on the diet.

The results of the treatment in general were very satisfactory and in some of the cases decidedly brilliant. The crucial test of the combined serum and local treatment was shown by cases that had been *previously treated by chrysarobin alone.* Some of these patients had been treated by my father, Dr. George Henry Fox, and myself by vigorous inunctions of chrysarobin combined with dietetic methods, and had failed to show practically any response. After the serum injections in combination with the local treatment the results in certain cases were astonishingly good.

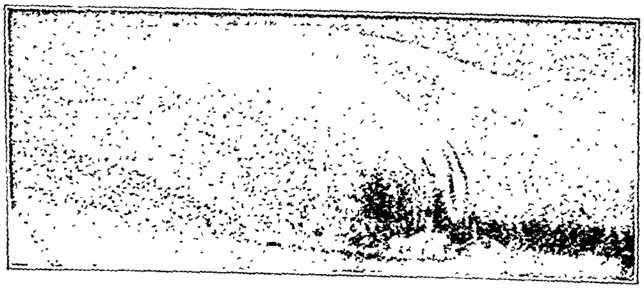


Fig. 4.—Case 10, four weeks after treatment; free of psoriasis for first time in forty-five years.

An idea of the favorable results may be obtained by reading some of the enthusiastic remarks made by the patients themselves. A woman (Case 4), the wife of a physician, had suffered from ten previous attacks of psoriasis and was thoroughly familiar with all of the usual methods of treatment. She was delighted at the rapidity with which her eruption disappeared, which she characterized as being "perfectly marvelous." Another patient (Case 10) thought the result was "like magic" and added that he had tried "all kinds of medicines and doctors in Europe and America for forty years without any result." Another woman (Case 12) said she "never saw chrysarobin take hold so rapidly and never saw the eruption fade so fast as from the present treatment." The daughter of the patient (Case 13) also stated that "although this was by all odds the worst attack she had ever had, the eruption had never disappeared so quickly." Another patient (Case 16) who had suffered from psoriasis for thirty years said that he could not remember when the disease had been so well under control. In his case it should be added that chrysarobin had been previously used on and off for a period of four years. One of my patients (Case 11) had been previously treated for two months with chrysarobin ointment, covered a good deal of the time by an impermeable suit of rubber cloth. In spite of this vigorous treatment the result had been most discouraging. After he had received three injections of autogenous serum, however, and had then been treated by chrysarobin, a lively dermatitis was caused and the greater part of the eruption promptly disappeared. Three other cases that we had previously treated seemed to be immune to any local action of chrysarobin, as it was apparently impossible to produce the slightest dermatitis from a 10 per cent. or 20 per cent. ointment. In one of these cases (Case 5) the result of the new treatment was certainly brilliant, while in two others (Cases 1 and 2) it was gratifying to the patients even though a certain amount of the eruption still remained. One of my patients (Case 28) who seemed most pleased with the treatment was a man who was relieved of his psoriasis for the first time in twenty-four years. He had been vigorously treated on former occasions by chrysarobin alone, but had never seen such a rapid effect from its use as at present when the combined method of treatment was employed.

---

[14] Ravaut, P.: Essai sur l'autohématothérapie dans quelques dermatoses, Ann. de dermat. et de syph., 1913, iv, Series 5, 292.

[15] Spiethoff, B.: Zur Behandlung mit Eigenserum und Eigenblut, Med. Klin., 1913, ix, 949.

[16] Franz, R.: Mit Nabelschnurblutserum geheilte Schwangerschaftsdermatose, Zentralbl. f. Gynäk., 1912, xxxvi, 913.

[17] Holobut, T., and Lenartowicz, J. T.: Versuche einer Pemphigusbehandlung mit dessen Blaseninhalte, Dermat. Wchnschr., 1914, lviii, 41.

[18] Gottheil, W. S., and Satenstein, D. L.: Autoserum Injections in Certain Obstinate Dermatoses, Med. Rec., New York, 1914, lxxxv, 620.

[19] Gottheil, W. S., and Satenstein, D. L.: The Autoserum Treatment in Dermatology, THE JOURNAL A. M. A., Oct. 3, 1914, p. 1190.

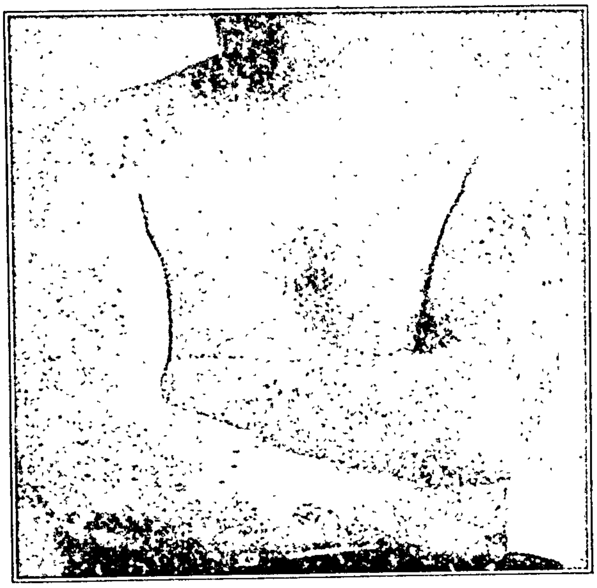


Fig. 5.—Case 11, before treatment; duration, three years.

It might be thought that the good results were not due to the serum injections but simply to the chrysarobin, as the latter drug was used in every case. To prove that the serum injections in some cases at least were responsible for the improvement it is only necessary to repeat that these cases had previously been treated with little or no result with chrysarobin and it was only when the inunctions of this remedy were combined with serum injections that the favorable results were obtained.

From the injections alone I was unable to see any decided effect on the lesions except in one case which might have been a coincidence. An improvement after injections alone was, however, noted by Gottheil and Satenstein, while as above stated in a case of Spiethoff's the attack of psoriasis was entirely relieved by the sole use of the injections.

No ill effects from the serum treatment were observed except in one case (Case 4) in which the third injection was followed by a rather violent urticaria lasting a week. Urticarial rashes were also observed by Linser in several cases, generally lasting from twelve to twenty-four hours. In the case of autogenous serum injections, it is hardly conceivable that any serious ill effects could result when proper aseptic precautions were observed. This cannot be said of the use of a foreign serum in which the possibility of anaphylaxis is always present. In the case of injections of homologous serum the possible transmission of syphilis or tuberculosis must be considered. For this reason the autogenous serum has an advantage over homologous serum and it has the further advantage of greater simplicity, as the patient who receives the injection is also the donor of the blood.

The technic of the injections is perfectly simple for those who have had experience in making venipunctures or giving intravenous injections. For those who have not had this practice it cannot be called difficult. My own plan has consisted at each sitting in drawing 50 c.c. of blood from the cubital vein, by means of a MacRae needle, into a sterile cylindrical glass bottle. The bottle and its contents were then properly balanced and placed in an electric centrifuge having a speed of eighteen hundred or more revolutions a minute. When the serum was thoroughly separated from the corpuscles and fibrin it was drawn off into a glass syringe and injected without delay, either intravenously or intramuscularly. The amount of serum that was generally obtained from the 50 c.c. of blood varied between 15 and 25 c.c., the latter being the maximum. In every case the serum was injected in an active state. As a rule the entire procedure of drawing the blood and

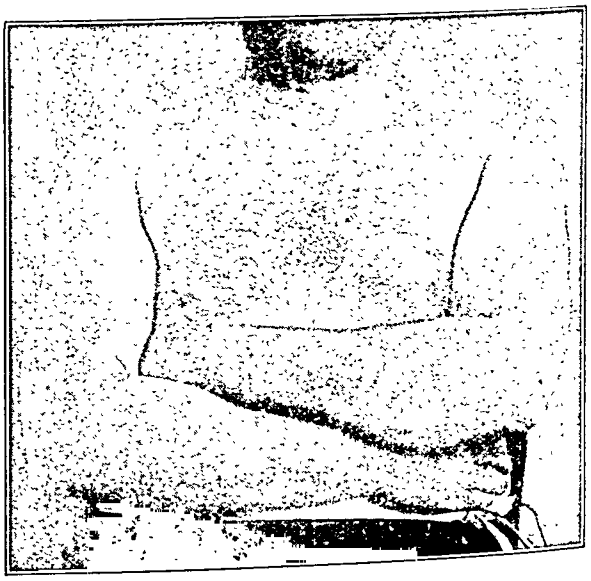


Fig. 6.—Case 11, three weeks after treatment.

injecting the serum was completed in half an hour or less.

The question as to why injections of human serum should have a curative action in certain dermatoses is certainly a difficult one to answer. That such an effect is not simply due to the power of suggestion was shown by Linser[20] in control cases in which salt solution was injected in place of the serum. The same writer also suggested that the action of the serum might be due to the addition of complement to the blood of a patient in which this substance was deficient. Ullmann, however, by titration, failed to find any deficiency of complement in his patients who responded well to treatment. Furthermore, it was found that good results were obtained by the use of serum that had been entirely deprived of complement (inactivated). That this suggestion of an addition of complement does not apply to patients treated with their own serum is, of course, self evident.

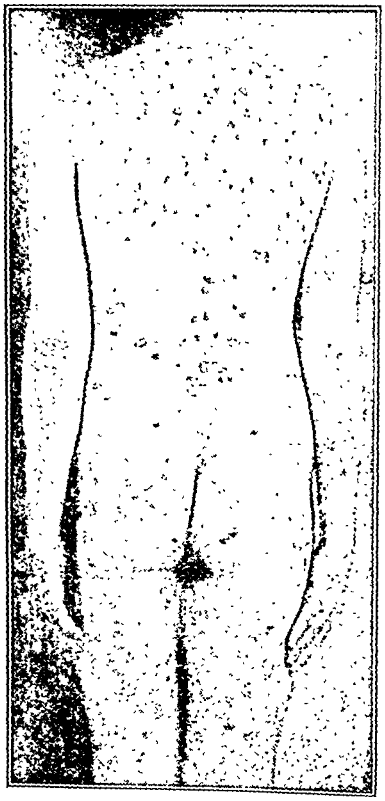


Fig. 7.—Case 28, before treatment.

It was also suggested by Linser that the beneficial results might have a connection with the eosinophil cells. He found that with the lessening of the intensity of the eruption there was a lessening of the number of eosinophil cells, while Ullmann, on the other hand, failed to find a regular decrease in their number after serum treatment but "rather in certain cases an increase." As we know so little of the real significance of the eosinophils, it seems idle to speculate at present on their causative relation to the serum treatment of skin diseases.

The idea naturally presents itself that the beneficial action of autogenous serum injections might be solely due to the bloodletting. That this therapeutic measure may lessen the intensity of some inflammatory skin diseases there can be no doubt; that the results obtained were due, however, to the injections of serum and not merely to the venipuncture has been shown by comparative tests with the two methods of treatment.

The results of treatment of the toxic dermatoses by serum of other healthy pregnant women were thought at first to be due to a specific reaction of the serum. That this was not the case seems apparent from the fact that similar results in toxic dermatoses of pregnancy were obtained by Freund[21] with horse serum, by Hofbauer[22] with pituitary extract and by Rissmann[23] and Eichmann[24] with Ringer's fluid (solution of sodium, calcium and potassium chlorid and ammonium carbonate).

In speaking of his case of pemphigus malignus cured by a single injection of human blood, Praetorius suggested that the curative substances were perhaps protective ferments in the sense of Abderhalden, whose duty it was to prevent the further formation of harmful intermediary products of metabolism or perhaps to destroy injurious secretions of the ductless glands.

Finally, Luitlen[25] showed by animal experimentation that inflammatory reactions of the skin to external irritants could be favorably influenced by injections of homologous, autogenous or foreign serum or homologous blood. Further experiments showed that parenteral introduction of colloidal substances, even when not protein in nature, as colloidal silicic acid and soluble starch, could also influence the inflammatory condition of the skin. He concluded that the action of the serum in the treatment of skin diseases had nothing to do with its antigenic function, but that the introduction into the system of a colloidal complex brought about changes of a character as yet unknown. Spiethoff,[26] whose investigations had been entirely clinical, agreed with the conclusions of Luitlen.

From the foregoing it is evident that we are not in a position to give an entirely definite explanation of the action of human serum in the treatment of psoriasis. I can merely say that in some unknown way the serum injections seem to have caused changes which make it possible for the chrysarobin inunctions to bring about better results than they could otherwise have attained.

The results of treatment recorded in this paper (see

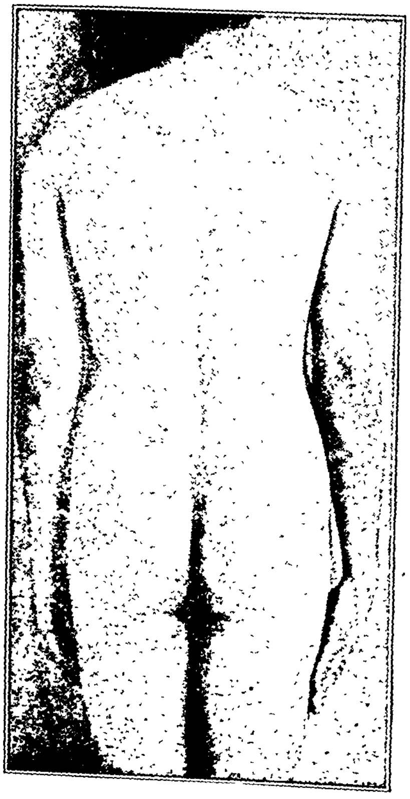


Fig. 8.—Case 28, one month after treatment; free of psoriasis for first time in twenty-four years.

---

20. Linser, P.: Ueber neuere Bestrebungen zur Heilung von Hautkrankheiten durch Blutverbesserung, Samml. zwangl. Abhandl. a. d. Geb. d. Dermat. Syph., 1913, ii, No. 8.

21. Freund, R.: Mit Pferdeserum geheilte Schwangerschaftstoxikosen, Deutsch. med. Wchnschr., 1911, xxxvii, 2419.

22. Hofbauer, J.: Schwangerschaftstoxikosen, Deutsch. med. Wchnschr., 1910, xxxvi, 1643.

23. Rissmann: Intramuskulare Infusionen von Ringerscher Lösung bei Toxikosen, namentlich bei den Toxikodermien von Schwangeren und Wöchnerinnen, Deutsch. med. Wchnschr., 1912, xxxviii, 1140.

24. Eichmann, E.: Schwangerschafts - Toxikodermien durch Ringersche Lösung geheilt, München. med. Wchnschr., 1913, lx, 183.

25. Luitlen, F.: Veränderungen der Hautreaktion bei Injektion von Serum und kolloidalen substanzen, Wien. klin. Wchnschr., 1913, xxvi, 653; Ueber Beeinflussung der Hautentzundungen, Wien. med. Wchnschr., 1913, lxiii, 2375; Ueber die Einwirkung parenteral eingeführter Kolloide und wiederholte Aderlässe auf die Durchlässigkeit der Gefässe, Med. Klin, 1913, ix, 1713.

26. Spiethoff, B.: Die Herabsetzung der Empfindlichkeit der Haut und des Gesamtorganismus durch Injektionen von Eigenserum, Eigenblut und Natrium nucleinicum, Dermat. Wchnschr., 1913, lvii, 1227; Methode und Wirkung der Eigenserum und Eigenbluthandlung nebst Bemerkungen zur Umstimmung der Hautreaktion durch Eigenstoff- und Natriumnucleininjektionen, Med. Klin., 1913, ix, 1845.

accompanying table) refer to the effect of the combined serum and chrysarobin method on individual attacks of psoriasis. For this purpose it seems to me that the new method is of real value. As to its possible effect in preventing recurrences of the disease, the time is too short for conclusions to be drawn. To hope for such a result would be too much to expect in a disease so peculiarly prone to recurrence. Even if future attacks cannot be prevented, in the present state of our knowledge, it is at least a satisfaction to have an improvement in the method of treating the individual attacks of such an obstinate and chronic disease as psoriasis.

CONCLUSIONS

As a result of my own observations in a limited number of cases I would draw the following conclusions:

1. Autogenous serum, when used alone, does not appear to be of value in the treatment of psoriasis.
2. It is of decided value in many cases when used in conjunction with chrysarobin. Obstinate cases of psoriasis that have long resisted vigorous treatment with chrysarobin ointment will often yield to this remedy when injections of autogenous serum are given.
3. Intravenous injections of autogenous serum, if properly given, are entirely devoid of danger.
4. The technic of preparing the serum and giving the injections is comparatively simple.

I wish to express my thanks to Drs. Edward Pisko and Benjamin F. Ochs for their kindness in supplying some of the material.

[Note.—Since this article was submitted for publication a communication has appeared in the *Journal of Cutaneous Diseases* (1914, xxxii, 780) by Hilario entitled "A Contribution to the Autoserotherapy of Certain Diseases of the Skin." Hilario reports excellent results in the treatment of five cases of psoriasis by the combined method of injections of autogenous serum and inunctions of a weak (2 per cent.) chrysarobin ointment. A comparatively large number of injections was given (as high as ten in one case) the amount of serum varying from 15 to 40 c.c. Hilario concludes that "The autoserum plays a very active influence in the treatment of psoriasis in the way of reducing the resistance of the psoriatic tissue, thereby rendering it more apt to be acted on by the chrysarobin, in weak percentages."]

616 Madison Avenue.

Scientific and Literary Imagination.—The imagination of Darwin, of Pasteur, for example, is as high and productive a form of imagination as that of Dante, or Goethe or even Shakespeare, if we regard the human uses which result from the exercise of imaginative powers: and mean by human uses not merely meat and drink, clothes and shelter, but also the satisfaction of mental and spiritual needs.—Charles W. Eliot.

OBSERVATIONS ON MILITARY SURGERY IN THE EARLY WEEKS OF THE WAR

J. P. HOGUET, M.D.
Adjunct Attending Surgeon to Bellevue Hospital; Assistant Attending Surgeon to the General Memorial Hospital and Hospital for the Relief of the Ruptured and Crippled
NEW YORK

It has been said by a number of capable military surgeons within the last decade that the treatment of modern gunshot wounds would be a much simpler proposition now than in former years. It was shown that in the Spanish-American and the Russo-Japanese wars the effect of the modern high-speed pointed rifle bullet was a humane one. The wounds were small, non-lacerated, and above all, clean, with comparatively few exceptions.

This might have been true formerly, when the number of men engaged was comparatively few, when transportation was rapid and when there was little use of the modern high-powered shrapnel shells, but from personal observation of the wounded in France during the early weeks of the war I can state without reservation that this is not the case.

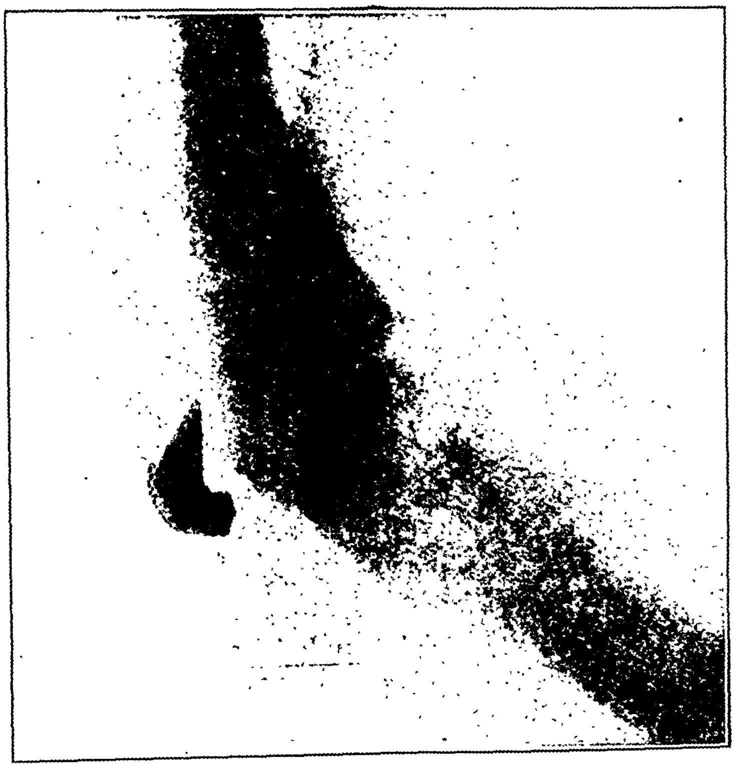


Fig. 1.—Ricochet or deformed bullet. This bullet had gone through the skin of the side of the thorax and then lodged in the elbow between the skin and the olecranon. The bullet had enough force left to fracture the humerus but not to shatter it.

Many surgeons have made the observation that in the month of August a large number of those injured by rifle bullets had absolutely clean wounds, especially when there was no involvement of bony structures. Since then the daily life of the soldier in the field has been an extremely arduous one. Facilities for personal cleanliness have been practically nil, and the average soldier's clothing in the field is in a frightfully dirty condition. This is well illustrated by the remark of one of the wounded who was being undressed on his arrival at a base hospital in Paris in November: he said that the trousers that were then being removed were the ones he started to the front in in the early days of August, and that he had not had them off once since then. The hospital bed was the first one he had been in since he had been called from his own home by the mobilization. It is hard to conceive how a bullet traversing such clothes as these can stay aseptic.

Shrapnel wounds — those caused by the lead shrapnel balls or parts of the casing of the shell — are, of course, attended by a greater amount of infection; on account of the greater size of the ball or shell fragment and their slower velocity, more clothes or other infectious material are brought into a wound, which is very much bruised and lacerated. Probably all these infections occur at the time that the man is wounded. Of course, there are a great number of wounded who cannot be immediately removed from the firing line and who lie for hours exposed to the rifle and shell fire of both their own men and the enemy, but luckily these are the exception. Most of the wounded are first dressed at the front by the field surgeons, the great majority of whom do their work with judgment and ability notwithstanding the surroundings, with little equipment and amid danger.

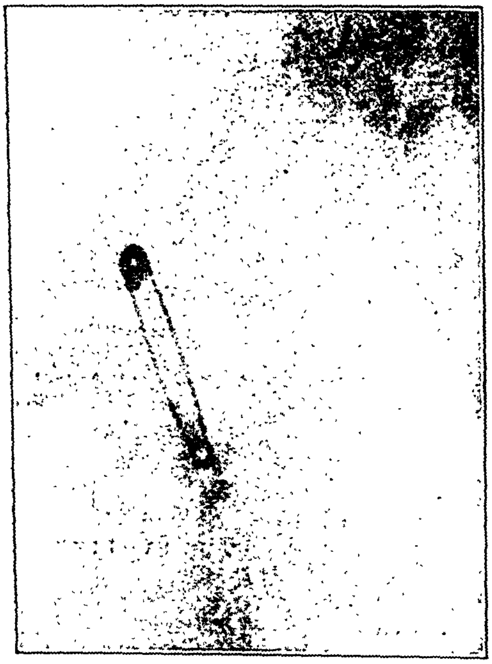


Fig. 2.—Typical butterfly fracture from bullet traveling at high speed.

Transportation of the wounded, considering all the difficulties and the great number to be transported, is being creditably done in France. The more seriously injured are being taken care of in the so-called "flying" ambulances which always stay within a few miles of the firing line. Those less seriously injured are removed to the trains, which now are fairly well equipped with the necessary supplies, and well heated and lighted. In charge of each train is an army surgeon, sometimes with assistants, and practically always with orderlies who attend to the comfort and minor wants of the men. Dressings are done *en route,* and these are practically always in good condition on the patient's arrival at the base hospital.

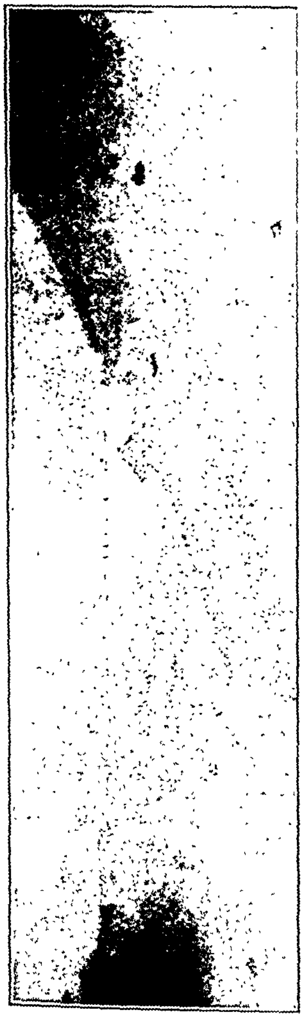


Fig. 3.—Fracture of humerus from shrapnel.

The military authorities up to the present have shown a desire to send as many wounded as possible to the south of France, and to keep the hospitals in the North empty, but at practically all the more important cities along the railroad there are temporary hospitals at the station into which those who are too sick to stand further traveling are taken, and then transferred to a permanent hospital in that city. At almost all stations on the railroads leading from the war zone kitchens have been established by the Red Cross, and the "secours aux blessés militaires," where hot food is supplied to the wounded.

Then, too, from the Pas de Calais district, where the fighting of late has been so heavy, a great number of wounded can be evacuated by the hospital ships to such ports as Cherbourg and Havre, further south, or directly to England. These ships are well equipped, are large and comfortable, and each has a complete staff of surgeons who do whatever emergency operating there is to be done on board. All the patients are dressed as often as necessary, and on some of the ships there is a Roentgen-ray plant where every wounded man is roentgenographed, the plate developed and sent with him to the base hospital when he disembarks.

Practically all the wounds seen are from rifle bullets and shrapnel. One saber wound was observed at the American Ambulance at Neuilly[1] since the beginning of the war; there were no bayonet wounds. Accidental injuries, such as simple fractures of the leg or foot from being thrown from a horse, were sometimes seen, but were very rare.

RIFLE BULLET WOUNDS

The wound of entrance of the pointed .30 caliber cupronickeled steel rifle bullet now used by the Germans is generally a small one—smaller than the diameter of the bullet—while that of exit is generally larger. The course of the bullet is generally straight, but of course one that is nearly spent may be deflected or even stopped by a strong bone such as the femur. Large lacerated wounds are sometimes made by the so-called "ricochet" bullet (Fig. 1), that is, one that has struck a hard substance and has been deformed by bursting its jacket and then rebounding, striking the person. These are the wounds that give rise to the report that the enemy is using dumdum or explosive bullets. In order to prove the use of such it would be necessary to actually remove such a bullet from a wound.

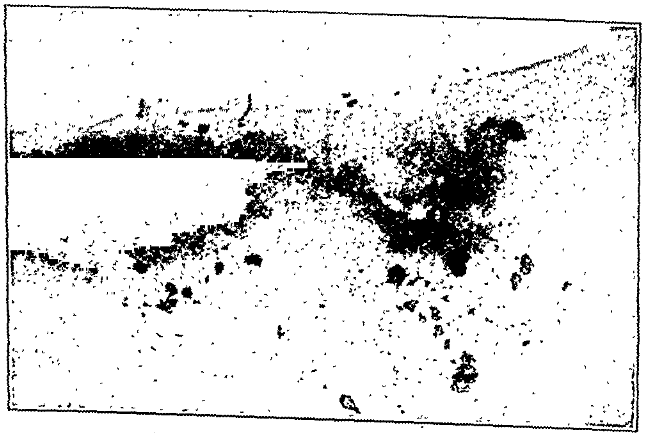


Fig. 4.—Shrapnel wounds of the foot.

The effect of the regulation German rifle bullet on each part will later be taken up, but its effect on bone must be discussed here. When a strong bone, such as the humerus or femur, is struck by a bullet within its zone of maximum speed (5,465 yards); one of two things may happen: Either the bone is cleanly perforated — and this is very rare — or else it is completely shattered. In the latter case we have the typical butterfly fracture, as is shown in Figure 2. In these cases there is such a transmission of energy from the bullet traveling at high speed that extensive comminution results. Near the center of the fracture the fragments are apt to be small, but long fissures extend up and down the shaft of the bone—in some cases into the epiphyses. These fissures make some of the fragments of a large size. On the other hand, when a bullet at the end of its trajectory strikes a bone, a simple fracture results, which very much resembles those caused by indirect violence in occupational injuries. In one instance the bullet, after striking the bone, had its force so nearly expended that it remained in the limb. Short flat bones, such as the clavicle or ribs, are generally shattered, especially when the blow is a glancing one. Small bones like the tarsus or carpus are most often extensively comminuted.

---

[1] "Ambulance" is the name given to the military hospital; Neuilly is a suburb of Paris.

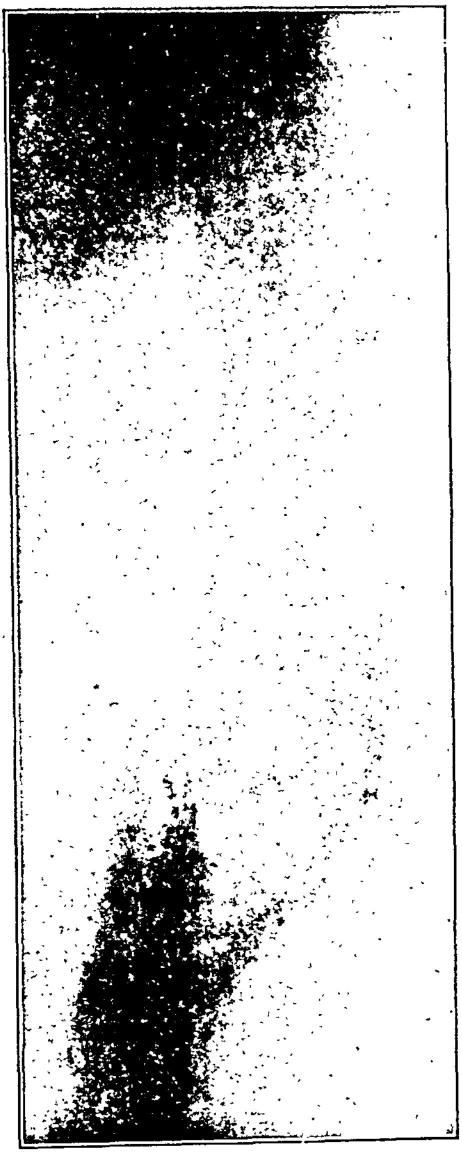


Fig. 5. — Fracture of femur from shrapnel.

SHRAPNEL WOUNDS

Wounds from shrapnel are, in general, more severe than those from rifle bullets. A shrapnel wound is one made by a shrapnel ball, or part of the casing of the shell. The former is a solid lead ball of about .50 caliber, forty balls to the pound. When the shell explodes these balls are scattered in all directions in the so-called cone of dispersion, but not at a very great velocity. The shell itself is shattered into innumerable pieces of varying sizes. Hence it can be readily seen that shell wounds result from large missles traveling at a comparatively low rate of speed, and are therefore characterized by a large amount of laceration to the parts. Perforating shrapnel wounds are rarely seen, in most cases the missiles lodging in the tissues and forcing in with them a large amount of clothing or parts of the soldier's equipment. These wounds, of course, vary greatly in size and are practically always multiple — seventy-five having been counted in one soldier. The destructive effect of shrapnel on bones is very great. Here the butterfly fracture is hardly ever seen, except when the bone is struck by one piece. In most cases there is an extensive comminution amounting really to a grinding of fragments, being extremely small, about the size of pebbles (Figs. 3, 4 and 5).

VARIOUS INJURIES

The exact statistics as to the relative frequency of injuries to various parts will not be brought out till after the close of the war, but it might be well to describe briefly here the more characteristic injuries of each part.

One saber cut of the scalp, which was a simple wound without fracture of the skull, was noted. One case in which a rifle bullet had completely traversed the skull from side to side was seen at the Beaujon Hospital on the service of Dr. Tuffier, and was the only one of its kind observed. Cases of furrow wounds of the skull were not uncommon; in most of these the furrow was anteroposterior and generally on the side of the head; they were most often accompanied by an extensive fracture of both inner and outer tables, but very little comminution was present. In one case of this class in which I operated at the American Ambulance, there was an extensive right-side extradural and subdural clot. There was a complete motor paralysis of the opposite arm and leg, which cleared up two weeks after the removal of the clot. Compound fractures of all parts of the skull were very frequent from shrapnel wounds, in which a portion of the overlying tissues had been torn away. Many cases were seen in which a portion of the soft parts of the forehead, together with an eye, had been completely destroyed by shrapnel. Here there was generally a fracture of the frontal bone through which brain tissue exuded. In one patient, received after he had been in a hospital at Arras for a week subsequent to being wounded, I discovered at operation an abscess

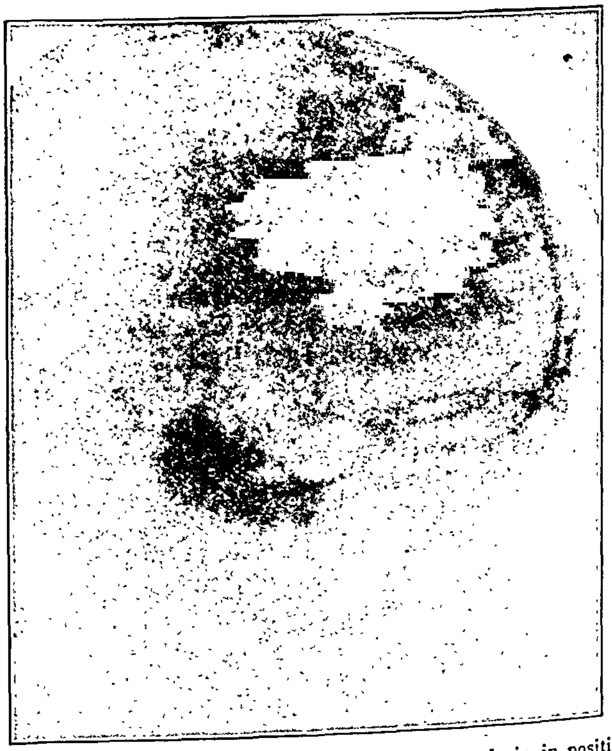


Fig. 6.—Abscess of frontal lobe of the brain with drain in position.

in the frontal lobe on the right side. There were also some small particles of shrapnel behind the right eye (Fig. 6).

Wounds of the face and eyes by rifle bullets were not uncommon, especially since a great deal of the fighting has been done in trenches. Two cases in which the bullet had entered one cheek, completely traversing the head and coming out at the opposite mastoid process, were seen. Both of these were uncomplicated, except for a complete facial paralysis on the side of the wound of exit. Several cases of the destruction of one or both eyes from bullets coming from the side were also observed. Shrapnel wounds of the face were one of the commonest of injuries. Some of the patients simply had very small particles of shell-casing embedded in the skin. Many others had large portions of the face destroyed, and of these there were numerous cases of injuries to the eyes and nose.

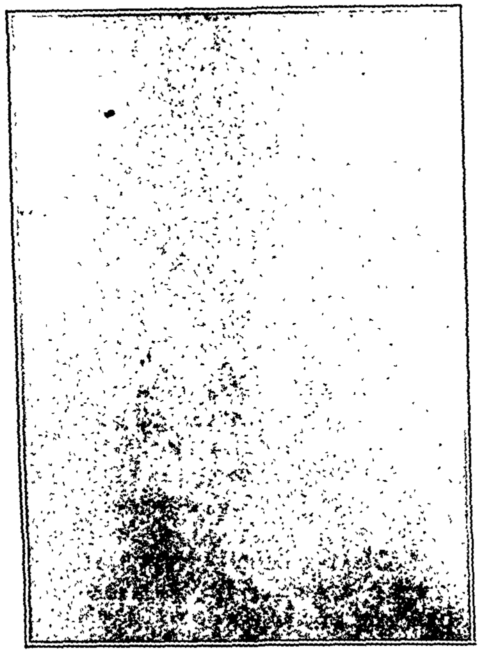


Fig. 7.—Shrapnel ball in pericardial sac. The picture is not very distinct as the ball was moved by every heart beat.

Fractures of the inferior maxilla by both bullets and shrapnel were numerous. They were all very complicated cases, as they were compound either externally or toward the mouth, or both, and the fractures were practically always multiple. In the shrapnel injuries part of the chin or side of the face was often torn away, and in many cases some of the underlying bone was gone. In most of the Paris hospitals these cases were turned over to the dental surgeons, whose work was excellent, and whose results were often brilliant. A number of very complicated fractures with loss of bone and overlying tissues were seen at the Beaujon hospital. Here the plan of treatment was to apply an interdental wire splint immediately on the patient's entrance. The wound of the soft parts was dressed until infection ceased, and any operation in the way of removal of dead bone, or plastic work, was done only when the wound was perfectly clean. This method apparently gave better results than when the interdental splint was applied only when the wound was clean.

Wounds in the neck are comparatively rarely seen. One artillery-man was seen with a large lacerated wound in the middle of the neck from a piece of shell. When taken off the field this patient seemed to be breathing his last. As the piece of the shrapnel was visible through the external wound, it was removed by the field surgeon. The patient immediately began to breathe normally, and it was then discovered that the phrenic nerve had been pressed on. In this case there was surprisingly little loss of blood. Another patient admitted to the American Ambulance with a bullet wound in the neck was almost exsanguinated, and it was found on necropsy that the vertebral artery had been completely severed. Large hematomas of the neck were sometimes seen, and it was found best in all these patients to cut down and ligate the injured vessels immediately. One or two isolated cases of injury to the cervical and brachial plexuses were noted, but were very rare.

Wounds of the chest were not common. Penetrating rifle wounds were sometimes seen. In some the bullet had completely traversed the thorax, and in a few it had remained in it. In all of these cases there was usually an extensive hemothorax, which practically always disappeared slowly of itself, or after a few aspirations. Only one case of empyema was observed, and in this case there was a perforation of the chest wall by a piece of shrapnel 1 by 2 inches in size. Practically all the chest cases showed a complicating fracture of one or more ribs with a considerable amount of comminution. A few had signs of pulmonary consolidation, which lasted a short while and cleared up.

Two very interesting heart cases were seen. In one a shrapnel ball had entered the left lumbar region, completely traversing the left side of the abdomen, and was found by roentgenoscopic examination lying free within the pericardial sac. The ball moved freely up and down at every movement of the heart and apparently caused the patient no inconvenience (Fig. 7). The other case of this kind was seen at necropsy

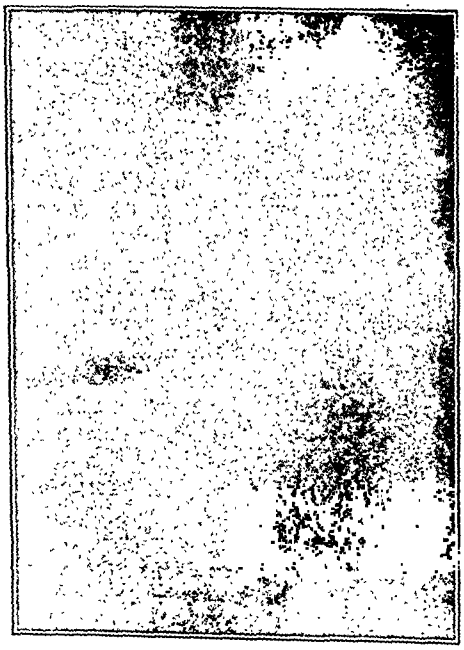


Fig. 8.—Bullet from a machine gun lodged in the abdominal wall, between the peritoneum and the internal oblique muscle.

in a patient who lived only a few days after entering the hospital. Here a large piece of shrapnel had completely traversed the abdomen and lodged in the heart muscle.

A surprisingly large number of patients had nonpenetrating wounds of the abdominal wall. Many of these simply had very small particles of shrapnel embedded under the skin. In some the fragments of shrapnel were quite large, the largest being 1¾ by 2½ inches in size. Several cases in which bullets had entered the side of the abdomen and had pursued their course under the skin were noted. In one instance the bullet of a rapid-fire gun entered the right upper abdomen over the eighth rib in front. On operation, I found it in the left iliac region between the peritoneum and the internal oblique muscle (Fig. 8).

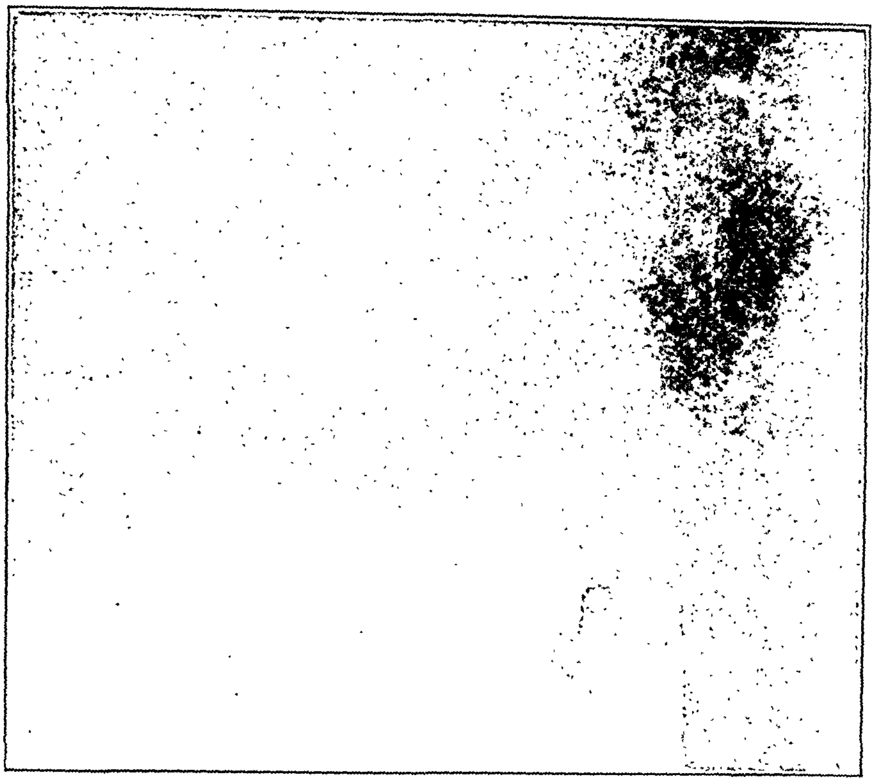


Fig. 9.—Shrapnel in perineum.

That the modern rifle bullet is not a harmless one when it penetrates the abdomen now seems to be an indubitable fact. The typical penetrating wounds are not seen at the base hospitals, or if they are they are seen only in the stage in which a localized abscess has been formed. From accounts of a number of men who have been doing active service at the front, few laparotomies are done there on account of inadequate facilities. The opinion of most of these men is that there is little effort on the part of the mucous membrane to close up the perforation. Most patients with abdominal wounds are now being transported to the nearest base hospital in a sitting position, and there treated expectantly. Luckily localized abscess formation is the rule, and in no case of this kind is operation performed at the base hospital unless there is a definite abscess. One case was seen at the American Ambulance in which the bullet had entered the left iliac region and had made its exit through the middle of the sacrum. This patient had no abdominal symptoms for almost one month, when an abscess began to develop on the left side. A number of cases of fecal fistulas were seen which had been evacuated to the base hospitals from those at the front after the acute symptoms had subsided. The majority were low down in the iliac, or lumbar regions, but several unusual ones were seen higher up in the abdomen, the highest being in the sixth intercostal space in the anterior axillary line.

Bullet wounds in the lower part of the abdomen anteriorly or through the buttocks posteriorly have been found to be especially interesting, and particularly fatal. The reason for this is that here there is often a perforation of the large intestine with a resulting abscess. Apparently a retroperitoneal cellulitis is set up in the neighborhood, so that a large blood-vessel may be eroded and a fatal hemorrhage ensue.

Wounds of the perineum are comparatively rare, though several cases were seen in which shrapnel balls or shell fragments were found lodged there (Fig. 9). The greatest amount of destruction of tissue from shrapnel observed was seen in a case of this kind. Practically all of the perineum had been destroyed here and a large part of the tissues on the inner aspect of both thighs.

By far the most frequent and most interesting cases from a surgical point of view that the war has brought out so far are those of injuries to the extremities. Here again the very superficial injuries from rifle bullets, and shrapnel must be emphasized. Some of the very superficial injuries from rifle bullets, or some of the more superficial wounds *en séton* may sometimes remain clean, but practically every other wound of an extremity from either bullet or shrapnel is infected at this stage of the war. It is for this reason that the compound fractures of the humerus and femur are so very serious, and the latter much more so than the former. When a fracture occurs in either of these bones very long fissures are most often present. There is infection of the soft parts and bone from the very beginning. In the former the infection seems to travel along the fascial planes between the muscles, so that abscesses may subsequently be found at a considerable distance both from the fracture and the wound of entrance. In the bone an acute osteomyelitis starts in at the main point of fracture and slowly spreads along each of the fissures. Hence we see the small fragments extruded first and later the large ones.

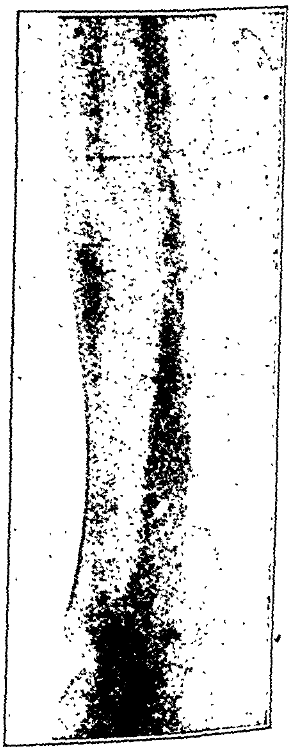


Fig. 10.—Metal shoe-lace clasp driven into the leg by a shell explosion.

Several instances have been noted in which the fissures have extended into the epiphyses, and on account of this osteomyelitis we find an infected joint in a rather short period of time. Where the diaphysis of a long bone is struck there is extensive comminution, but fissuring into the shaft rarely occurs. In these cases, of course, infection of the joint is immediate. Compound infected fractures of the humerus, even when accompanied by an extensive loss of bone and soft parts, yield much more readily to treatment than do similar injuries to the femur. Whether this is due to a better blood-supply to the upper extremity, or whether the foyer of fracture is easier of access here will not now be discussed, but the fact remains, and will probably become more and more evident during the course of the war. Amputation of the arm has rarely to be resorted to unless there is injury to the brachial artery high up, or unless some complication, such as gas gangrene, sets in. Amputation through the thigh, however, must be done in a fairly large proportion of cases, as it must be borne in mind that these patients become rapidly septic so that the first indication is to save the patient's life, the second to save the limb and the third to preserve as much function as possible. Conservatism in the treatment of these fractures is the rule in France and England. I have it on very good authority that such is not the case in the German army.

Conservatism is, of course, to be encouraged, but the treatment of these fractures is one that requires absolutely the best of surgical judgment. Good and efficient drainage must be established early and be maintained. Loose fragments of bone or pieces of shrapnel must be removed. The postoperative treatment is more important than the operation. The limb must be immobilized, and in the case of the femur, extension must be employed. A plaster hip spica, although carrying out both immobilization and extension, has been found to be impracticable. It soon becomes loose as the swelling of the limb decreases, and is dirtied in a very short time, as the amount of discharge from these wounds is enormous. The simplest method and the most practicable consists in extension with weights and immobilization by means of wooden splints on a fracture pillow. An idea of the gravity of these fractures, and the difficulties in their treatment, may be somewhat appreciated when it is remembered that these patients have for several months been living under a terrible strain, and often with insufficient food. The reason that conservatism can be used at all is that all these patients are young men.

Of the two dreaded complications of gunshot injuries — tetanus and gas gangrene — it is much too early in the war to speak. The French government had a supply of antitetanic serum on hand, so that it was a rule in many base hospitals that every soldier should be given an immunizing dose on admission. An idea of the comparative rarity of tetanus can be gathered when it is stated that in four hospitals in Paris — each with a capacity of about 400 beds — not one has had more than six cases.

Gas gangrene, however, is much more common and is especially prone to follow shrapnel wounds of the thigh. The methods of treatment differ in various hospitals. Most of the French surgeons do not believe in extremely large incisions for drainage, but make comparatively small ones, which are frequently irrigated with peroxid. Many are in favor of draining and forcing oxygen gas under pressure into the affected tissues for a considerable length of time — from twelve to seventy hours. This can be repeated at intervals if the process does not resolve. Both these methods of treatment have given good results in some cases, but in many others amputation has to be done, and very often this is of little avail.

For the privilege of having been able to operate in and treat a number of the cases mentioned here I wish to thank Dr. Du Bouchet, Surgeon-in-Chief of the American Ambulance at Neuilly. To the many other surgeons in Paris, by whose courtesy I was able to see the cases under their care, my thanks are also due. The roentgenograms reproduced here were kindly made for me by Dr. Jaugeas and Mr. King of the roentgenographic department of the American Ambulance at Neuilly.

40 East Forty-First Street.

THE RELATION OF POSTURE AND INTESTINAL DERANGEMENTS TO COXITIS*

ROBERT B. OSGOOD, M.D.
BOSTON

The title of this communication is misleading. One has a right to infer that I shall at least attempt to explain the relation of posture and intestinal derangements to coxitis. I shall offer no explanation, however, and there should be an interrogation mark after the last word.

The paper is simply a report and a consideration of three cases in which there was an apparent relationship between faulty posture or intestinal derangements and coxitis, and in which the discovery of this relation made unnecessary any prolonged local treatment of the coxitis. The excuse for its presentation is the hope that not all of those present have noted such an association. If this is so and your experience should tally with mine it is possible that you may occasionally be spared a modicum of anxiety, a few families may be spared the distress which the diagnosis of tuberculosis always brings, and certain patients may be spared a prolonged and irksome treatment which may not be demanded.

You are all familiar with the belief held by Sir Arbuthnot Lane[1] that unless the capacity of the several tissues of the body to resist the entry of certain organisms is inhibited by an auto-intoxication resulting from intestinal stasis, it is impossible for these diseases to develop. Therefore, to meet these diseases he adopts measures to improve the drainage scheme and cites cases in which rapid disappearance of large masses of tuberculous glands in the abdomen has occurred, following disconnection of the large bowel.

Fraser,[2] writing on the types of organism in bone and joint tuberculosis in children, is quite convinced that the more common bovine form enters usually by the mouth in milk. It is probably true that an intestinal stasis favors extension to the bones and joints.

Barrington-Ward,[3] working at Great Ormond Street, reports a case of double tuberculous disease of the hip with sinuses, in which orthopedic treatment had been unavailing, but in which rapid recovery followed a short circuiting operation after the manner of Mr. Lane.

It is not, however, to suggest that faulty posture and intestinal derangements bear a causative relation to tuberculous coxitis that these cases are reported. I should be disinclined to deny the possibility of such a relationship, but in this paper I wish rather to suggest that associated with certain intestinal derangements and faulty posture in children there may exist a toxemic arthritis indistinguishable clinically from tuberculosis of the hip.

---

* Read before the Section on Orthopedic Surgery at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

[1] Lane, Arbuthnot: Lancet, London, Dec. 14, 1912.

[2] Fraser, S.: Brit. Med. Jour., April 12, 1913.

[3] Barrington-Ward, L. E.: Surg., Gynec. and Obst., July, 1912.

Thanks to the work of careful pathologists, among whom your Chairman and honored guest are eminent, we know many of the changes which take place in tuberculous disease of the joints. These changes are fairly constant. Tubercles are present, the synovial membrane proliferates, erosion of cartilage appears, and bone foci follow or antedate the involvement of the synovia.

Poncet[4] and others have described a *rhumatisme tuberculeuse* due to toxins elaborated in, and disseminated from, a tuberculous focus in some other part of the body. If such a condition obtains it is probable that joints thus affected may completely recover if the focus can be eradicated.

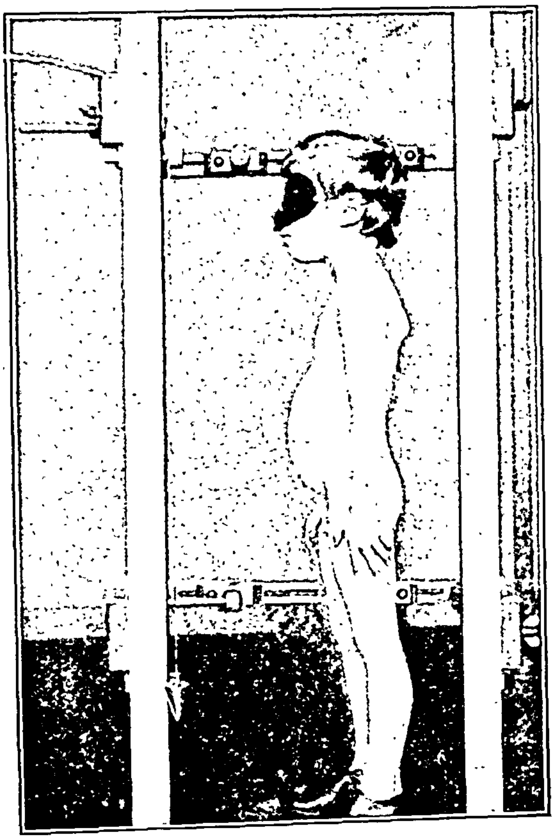


Fig. 1.—Natural standing position, Case 2.

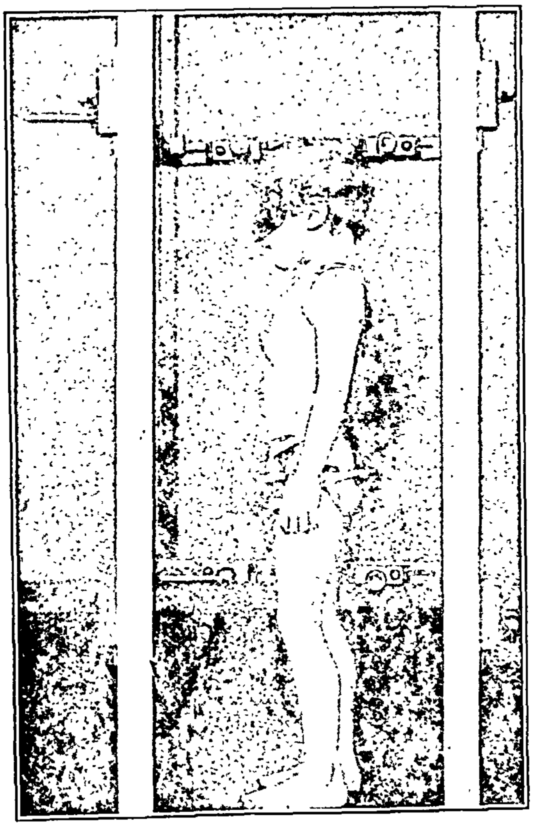


Fig. 2.—Corrected standing position with postural brace, Case 2.

On the other hand, although my experience has not been large, I believe that I have never seen a joint recover complete range of motion or perfect function in which the clinical signs over a considerable period of time were typical of tuberculosis and in which the clinical diagnosis was confirmed by tuberculin reactions, roentgenoscopy or exploratory operation and pathologic examination. I recognize that this experience is at variance with many reported complete cures of tuberculous disease, especially of the hip-joint. My conviction, however, is strengthened by the cases to be reported, which presented quite typical clinical pictures of tuberculosis. All of these to-day have perfect hip-joint motion and perfect function. In all three a carefully done von Pirquet test was absolutely negative, and I am led to believe that a negative reaction is strong evidence that no active tuberculous process of any sort is present.

REPORT OF CASES

Case 1.—*History*.—Girl, aged 6 years, 3 months. Oldest child of a physician, carefully brought up under absolutely hygienic surroundings outside the city. She was first seen six months ago with symptoms in the right hip which had been intermittently present for four months. The family history was good. The past history showed digestive troubles dating back to her first year, continued into her second year, and followed by a more or less chronic constipation and occasional "upsets." During the last four months there had been repeated complaints of pain in the right thigh and the right knee, but never any lasting limp. Three days before being seen she had walked two miles and came back tired, with complaint of pain in the thigh near the knee. Her present illness began on the day on which she was seen. She had started to get up at 5 a. m. to urinate and found it was painful to bear weight on her right leg. There had been no night cries or night sweats. There was little pain at rest or on slight passive movement.

Examination. — The general examination by a careful internist had been negative. The child was poorly nourished, with little color. She stood favoring the right leg, with a prominent abdomen, flat chest, hollow back, forward shoulders, prominent scapulae, pronated feet, and an attitude suggestive of congenital visceral ptosis. The length of the legs was the same. The circumference of the calves and thighs was the same on each side. The motions of the spine and all other joints except the right hip were free and painless. The motions of the right hip were limited, painful and accompanied by spasm in extremes of flexion, rotation and hyperextension. Jarring was only slightly painful. Palpation was negative except for some tenderness to deep pressure over the head of the bone.

A definite diagnosis was withheld.

Treatment and Subsequent History.—Recumbency in the open air was advised, in positions to stretch out the flat chest and tighten the lax abdominal wall. The child was to assume twice a day for five or ten minutes an inverted position with thighs on the low bed and head on a pillow on the floor; mechanical cathartics, liquid petrolatum and agar-agar were ordered, and she was measured for a back brace with abdominal pad to correct the standing position, support the abdomen and maintain proper posture. The pronation of the feet was corrected. For one week the symptoms remained about the same with some diminution of pain and sensitiveness. There developed 0.5 cm. atrophy of right calf. Excellent roentgenograms of the two hips on the same plate and of the two hips singly were negative as to bone disease. The von Pirquet test made a little later was absolutely negative. The child was gotten up with the brace, but without protection to the hip-joint, and exercises to improve her posture and abdominal and back musculature were prescribed under careful supervision.

There was rapid improvement in nutrition and color, together with a complete disappearance of objective and subjective symptoms in the right hip-joint. An appearance of health not before present gradually ensued and was noteworthy. Four months later the patient, after some error of diet, had a severe urticaria and went for several days without her brace or exercises or the assumption of the corrective positions. Within a few days there was an acute digestive upset, but without symptoms in the hip except perhaps a slight guarding.

---

[4] Poncet: Presse Méd., March 26, 1913.

At present she is active, faithful to exercises and positions, wearing the brace half the day, and without subjective symptoms. The right hip has normal motion in all directions. The thighs and calves measure the same on the two sides. The right leg is now nearly a centimeter longer than the left, presumably from the stimulation of epiphyseal growth caused by the toxemic arthritis.

Case 2.—*History.*—Patient of Dr. F. W. Taylor of Cambridge, boy, aged 4 years, 5 months. Oldest child of a man of leisure, carefully brought up under hygienic surroundings in the outskirts of a city. He was first seen five months ago for symptoms in the right hip which had been intermittently present for one year. The family history is negative except that the mother may be described as delicate. The past history showed mild digestive troubles, perhaps not more than in many children, but for over a year the occasional association of pain in the knee with these upsets. This pain usually occurred at night and amounted to typical night cries. There had been no limping in the morning which followed these first attacks of night pain. In the spring of 1913 he had two attacks of bronchitis and croup, and has seemed less well ever since. During the summer, six months before being seen, there had been a very acute digestive upset amounting to almost complete obstruction. Since this time there has been a tendency to constipation. One month before being seen the child had had a slight fall in his play, had limped for a day or two, and complained of pain for a day or two longer. There were occasional night cries as before. Three weeks before being seen he began to limp and to complain of pain in his right leg and knee. The next day he could scarcely walk, but on the day following he was better, and the symptoms gradually passed off. Soon after that he had another attack of croup, and an adenoid operation was advised by an able laryngologist. One week before being seen he had such an acute attack of pain in his right leg that the child screamed when touched and the family physician noticed that the hip-joint motions were greatly limited. The adenoid operation was performed five days before he was seen, and the hip had very rapidly improved while he was recumbent and after the catharsis previous to the operation.

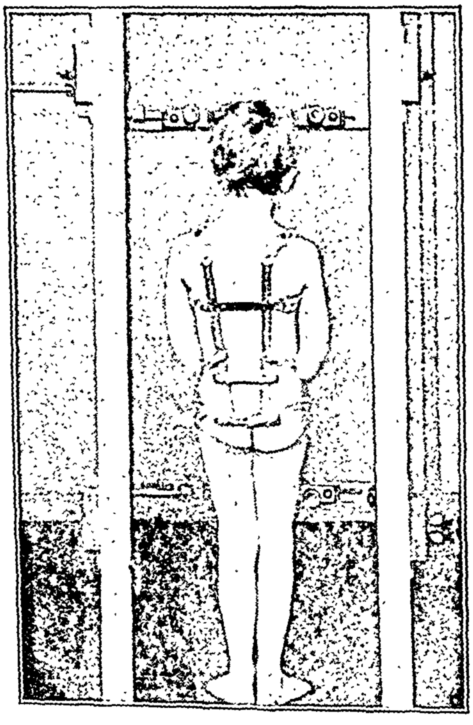


Fig. 3.—Back view of brace to correct posture, Case 2.

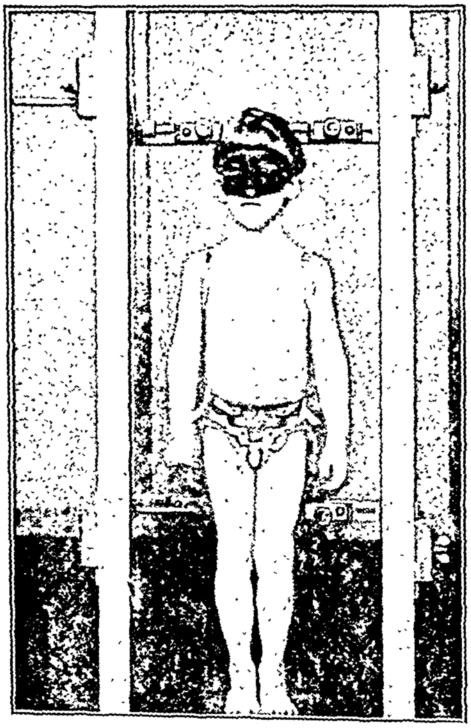


Fig. 4.—Front view of brace to correct posture, Case 2.

Examination.—The general examination by a careful internist, except for the adenoids and enlarged tonsils, had been negative. The child was rather poorly nourished and of poor color, doubtless accentuated by the recent operation. He stood evenly on both legs, with prominent abdomen, narrow, flattened chest, forward shoulders, prominent scapulae, and an attitude suggestive of congenital visceral ptosis (Fig. 1). The length of the legs was the same. The circumferences of the calves and thighs were equal on both sides. The motions of the spine and all other joints, except the right hip, were free and painless. The motions of the right hip were nearly normal, but on careful examination there was distinct restriction and slight spasm in hyperextension and rotation. No sensitiveness to jarring. Palpation was negative.

Treatment and Subsequent History.—The child was not put to bed, but the positions described in Case 1 were shown. Mechanical cathartics were advised and he was measured for a back brace with an abdominal pad to correct the standing position, support the abdomen and maintain the proper posture (Figs. 2, 3 and 4). A moderate amount of weight-bearing was allowed. A provisional diagnosis of toxemic arthritis was made. Roentgenograms taken of both hips on the same plate and of each hip singly were negative. The von Pirquet test was absolutely negative. All the subjective symptoms disappeared, and although the boy had subsequently a second adenoid operation and a tonsillectomy, there was no recurrence of leg pain until about seven weeks ago, when he complained of slight pain in the knee for a few hours, May 2 and 3. He was seen, May 4, but the examination showed normal conditions except for the faintest suggestion of limitation in hyperextension. The boy is now apparently entirely well, with good color, and has had no digestive upsets or sluggishness of the bowels.

Case 3.—*History.*—Girl, aged 14½ months. Only child of people in good circumstances, living in New York City, and referred by a prominent and careful orthopedic surgeon. She was first seen about three months ago and the symptoms had been present for three months. The family history was negative. She had been a bottle-fed baby, great difficulty having been experienced in her early feeding. A proprietary food seeming to agree best, she had been fed on this. After a digestive upset with vomiting, the mother noticed that although she had begun to bear weight and to stamp her feet, she ceased doing so on her right leg, and weight-bearing was painful. When the right leg was raised or moved roughly the child cried. There were typical night cries as well. The family physician was summoned and the orthopedic consultant referred to above was advised by him. The general examination was said to be negative, changes in the diet were suggested in the line of more natural food, orange juice, etc., recumbency and traction were ordered, and a provisional diagnosis of tuberculosis of the right hip-joint made. Within a short time the pain and spasm and night cries having disappeared a short plaster spica was applied by the family physician. This first plaster was worn until three weeks before the child was seen by me, and then a new cast was applied. The family soon moved to the neighborhood of Boston, and the second cast being foul with urine, etc., was removed by a local physician the day before the child was brought to me. During the one night on which she slept without the cast there was no night cry. Since the cast had been applied the digestive upsets had ceased, but the stools had often been hard.

Examination.—The general examination was negative. The baby was well nourished, healthy looking, moving both legs with apparent equal freedom and power. There was no evidence of any sensitiveness or guarding in any of the voluntary movements of the right leg. There were no signs of rickets or scorbutus. The abdomen was prominent, but not tender. As far as could be determined, the legs were the same length. The circumference of the calves of both legs were equal, the right thigh a centimeter smaller in circumference than the left, 8 cm. above the upper border of the patella. The motions of all the joints, including the spine and right hip, were free and painless. Palpation was negative. There was no pain on jarring. During the office visit the child had a movement of the bowels consisting of a hard scybalous mass quite different from the normal movements at this age. Roentgen examination was negative except for a slight thinning of the cortex on the right. The child moved slightly and the examination was not entirely satisfactory.

The final diagnosis was withheld until a von Pirquet reaction could be done, but the possibility of the condition being other than tuberculosis was discussed with the mother.

Treatment and Subsequent History.—The child was placed in recumbency, the bowels were regulated with liquid petrolatum, and the case was referred to a pediatrician for careful examination, regulation of the diet, and a von Pirquet test. No fixation or traction to the right hip was advised. The local physician was asked to make daily visits with his observation directed toward any suggestion of a recurrence of symptoms. The von Pirquet test was absolutely negative. The child was seen again one week later. There had been no noticeable subjective symptoms, although on two or three occasions the child had wakened at night and cried, but not typically as before. The right leg at rest seems to be held in a slightly abducted position. There is no suggestion of limitation of motion in any direction nor any pain on manipulation or jarring. The child has remained well up to the last report.

SUMMARY

No definite conclusions can be drawn from so small a number of cases. They seem to me to indicate the importance of (1) a careful history, (2) a search for possible causes of toxemia, (3) a von Pirquet test and perhaps tuberculin tests with Koch's old tuberculin for the local reaction if the skin test is positive, (4) a provisional diagnosis at the first visit, and (5) the withholding of radical treatment other than recumbency until the diagnosis can be confirmed. They seem to suggest that faulty posture and intestinal derangements may in certain cases have some relation to coxitis.

372 Marlborough Street.

ABSTRACT OF DISCUSSION

Dr. Joel E. Goldthwait, Boston: We must recognize that the physiologic processes of the body on which the nutrition of bones and joints depends should be brought to the highest possible standard, so that the individual may have the greatest possibility of repair. The work of Sir Arbuthnot Lane is suggestive in this connection. When a man of his experience short-circuits the bowel of all children with tuberculosis of the joints caused by general toxemia, and obtains such good results it should make us think. We may not be willing to short-circuit a bowel, when the bowel is already too short in these children, nevertheless, we may make it functionate better, and so stop the toxemia, as Dr. Osgood has suggested. If we examine children, not only with reference to local joint inflammation, but also with reference to the entire body, we shall do well. If we think first of the child as a machine, and consider the disposition of his organs through his standing so badly out of poise, we will see that the normal physiologic action cannot take place. We must build up the resistance by improving the physiologic action, intestinal and otherwise, as well as protect the joints.

Dr. Compton Riely, Baltimore, Md.: Dr. Osgood's paper brings up another question in the diagnosis of tuberculosis, especially tuberculosis of the hip. It shows, I think, that we should be more careful in making our diagnoses of hip-disease. The more of these cases I see, the more doubtful I am of their absolute diagnosis as cases of tuberculosis. We have been taught that if children had pain in the hip, limitation of motion, night cries, etc., they had tuberculosis of the hip; and we used to treat these cases as such, but we must be careful to make a more definite diagnosis in the future. In order to do that we must take time to go through every test and examination that we can think of. If we did this we should find fewer absolute cases of tuberculosis than some of us think.

Dr. Charles A. Parker, Chicago: There is at least one method by which a diagnosis in some of these cases can be reached. This is by learning the causative factor, according to the method of Dr. E. C. Rosenow of Chicago. In osteo-arthritis of the knee he took out the inguinal glands which enabled him to make the diagnosis in twenty-three cases; he found the infectious agent in the blood and teeth, and was able to reproduce the disease in animals. His method of diagnosis will probably come rapidly into vogue. The lymphatic glands are taken from the region drained.

Dr. Frederick Hodgson, Atlanta, Ga.: I confirm Dr. Osgood's observations on these conditions of the hip. Dr. Michael Hoke of Atlanta read a paper some time ago on toxic arthritis of the hip; and since then we have been careful in making these diagnoses at the first visit. We put the patients to bed with the best of hygienic surroundings, use colon lavage and get them into the best possible condition. We find that in this way many cases will clear up.

Dr. W. G. Stern, Cleveland: Reasoning backward from Dr. Osgood's observations, we come to consider the fact that the differential diagnosis of these cases from genuine cases of tuberculous coxitis can be best made by the tuberculin reaction. At the meeting of the American Orthopedic Association in Cincinnati, I reported on a combination of the von Pirquet and the Calmette tests as a reliable guide in making the diagnosis of tuberculous coxitis. I reported cases in which the von Pirquet and Calmette tests were negative in the presence of suspicious joint-pain. One was the case of my own son, who had had, within six months, four attacks of night cries with fixation of the limb in adduction and flexion, muscle spasm and slight limp. Roentgenoscopy and the tuberculin tests were negative and we found that the condition was due to a toxic absorption from the bowel from the ingestion of veal. On cleaning out the bowel and keeping the boy at rest we overcame this condition. Then we gave him some roast veal and brought on another attack. Some persons have an idiosyncrasy to certain kinds of food. In this case the idiosyncrasy was to veal. Since then I have looked for other cases and found one, a year ago, in a girl who presented very much the same posture that Dr. Osgood has shown in his cases. By methods similar to those that he has pointed out a cure has been effected.

Dr. Roland Meisenbach, Buffalo: What applies to children also applies to adults. I had one case in a woman 27 years of age who complained of coxalgia. Hyperextension of the hip-joint was limited on the right side and she also had pain over the region of the appendix, although the surgeon could not find an actual appendicitis. Bismuth oxychlorid was given her in small doses over a period of a week. The symptoms disappeared entirely and hyperextension was regained.

Dr. R. B. Osgood, Boston: Dr. Parker's suggestion is valuable, but it must be remembered that various men have recently shown that these bacteria stay in the blood a very short time indeed. In these attacks, therefore, it would be difficult to catch them in the blood at the time and confirm the diagnosis by means of the glands; and I believe that frequently glands that are causing no trouble will show, by culture, some bacterial growth. Hence, while that suggestion is helpful in cases that we believe represent toxemia rather than definite bacterial infection of the joint, yet I do not think it is of a great deal of use in cases of definite bacterial infection. I was much struck with Dr. Stern's valuable observation of an arthritis of the hip caused by the ingestion of veal.

THE SYNDROME OF ADRENAL INSUFFICIENCY [*]

TOM A. WILLIAMS, M.B., C.M. (Edin.)
Neurologist to Epiphany Dispensary and Freedmen's Hospital
WASHINGTON, D. C.

To the neurologist many cases are referred with the diagnosis of neurasthenia. Many of these are psychologic, being in reality a fixed idea of incapacity derived from the suggestions of medical men or friends, or, perhaps, because of some internal mental conflict which makes the motives for invalidism paramount over those for normal active life. Such patients often actually do become weak, either from mere inaction, or from the malassimilation induced thereby and the worries they permit themselves; this is a familiar picture in a traumatic neurosis,[1] so-called. But among those labeled neurasthenics, there is a certain proportion of patients in whom hysteria is not the factor at all; I do not here refer to psychasthenic patients, in whom anxiety and other features of psychic genesis dominate the picture; nor do I include the *formes frustes* of such psychoses as cyclothymia (manic depressive insanity), hebephrenia, etc. I refer to cases in which definite somatic disturbances are ascertainable, and in which any psychologic symptoms present are dependent on these. Among such cases of "neurasthenia" are persons with latent abdominal or pelvic inflammations, *petit Brightisme*, arterial hypertension and the metabolic disorders which precede it, early stages of cerebrospinal lues, especially that called paresis, and quite often perversion of function of the glands, more especially the thyroid.

Among such cases, I have encountered several in which none of the foregoing conditions were present, but in which the patients were suffering from a profound depression of the neuromuscular functions, quite different from that which is induced mentally or from disturbances of the brain. These are characterized by great asthenia, with lack of concentration, by low blood-pressure, sometimes by psychologic peculiarities, and sometimes by changes in pigmentation. I select a few as paradigms:

Cases may be divided into three classes:

1. Those in which there was improvement or recovery.
2. Those in which there was not.
3. Those which ended fatally.

CASES WITH IMPROVEMENT OR RECOVERY

Case 1.—*History*.—A man holding a high position under the federal government was brought to me by his friend, Dr. Gerrish of Portland, Maine, in 1911. He complained that he was totally unable to bring himself to deal with the responsibilities of managing the situations with which he had to deal, besides which he was greatly depressed mentally and believed that his usefulness was ended. He "can do work if it does not demand responsibility or the handling of men," for he "finds that his judgment one day takes a certain course only to be deflected the next day, even though the facts may be the same." He can make up his mind neither to accept a yachting invitation to Europe he has received, nor to take a professorship he has been offered for next year. He was pale, languid, had flabby muscles and subcutaneous tissues. He had typhoid at 18, and pleurisy at 20. Two years before he had a rise of temperature and a rapid and irregular heart, the cause of which was unknown. He has always taken his work responsibilities very hard. He is a bachelor of a somewhat retiring disposition, which his need for long inspection trips in the West has accentuated.

Physical Examination.—This was negative, except that there was a very slight tremor, the heart sounds were feeble, the systolic pressure was 100 and diastolic pressure 70.

Treatment and Result.—The psychologic situations were entered into with the patient very thoroughly, and it was explained that a simple physical depression from want of adrenal juice prevented the brain from accomplishing the processes necessary for the complex psychologic adaptations which had always caused stress on account of his overconscientious way of regarding his relations with others. He was told that worrying would only aggravate the distress, and that his mental incapacity did not arise from what he feared, impending dementia; it would disappear on rectification of his physical state, the nature of which was explained to him. His diet was regulated and he was ordered much rest along with active exercises in short periods. He was given dried adrenal gland tablets, 2 grains thrice daily. The following week there was an improvement, the systolic blood-pressure was 98, diastolic 70; ten days later the pressures had risen to 114 and 80, respectively, he felt better and looked fresher. The following week after sleeping much, he felt better, but still had no spring; the blood-pressures were 112 and 70, respectively. He was staying with friends, worrying less and clearing up his work preparatory to a vacation in the Maine woods. Just before leaving, two weeks later, his pressures were 113 and 80, respectively; he was now more hopeful and more comfortable in mind; the pulse rate remained 70 throughout.

In the fall of 1912 he returned very much better, the dose of adrenal substance having been reduced until finally he went without it; the blood-pressure runs around 118 and 80, and although he has never completely regained his spring and ambition, he is much better, "feels fit," and has undertaken all the work for the government which he had planned.

Case 2.—A mechanic, aged 57, was referred in February, 1912, by Dr. Jackson; he had done no work after an attack of malaria the preceding September, because he had been very weak and dizzy and had a throbbing in the abdomen. Examination showed a tremor a little like that seen in paralysis agitans, but occurring only on spreading the hands, and a slight tremor of the hands and face; there was slight asthenia, and a hint of von Graefe's sign, especially when he was made to look down rapidly. The blood-pressure was systolic, 108; diastolic, 78; no other abnormalities were found. He was returned to his physician with a reserved prognosis, and a recommendation for massage, a proper standard dietary, and adrenal substance. These measures improved him so much that he returned to work and has been well ever since. His physician says that he has never seen such a transformation.

Case 3.—*History*.—A professor of economics, aged 44, was referred to me by Dr. Newell in March, 1913, because of headaches for six years, especially when tired after using the eyes. Twenty-one oculists had failed to relieve him in this country and in Europe. An internist had found nothing the matter with him. He complains also that at times his whole body is sore, especially the neck, and he often awakes with a pain over the sacrum, dull and heavy, radiating and intermittent, which may be removed for a time by a bath; there is no neuralgia and he sleeps well. It is significant that though he says he cannot work because of the eyes, he easily tires also when read to. He was much worse since grip a month before.

---

[*] Read before the Section on Practice of Medicine at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

[*] Because of lack of space this article is abbreviated in The Journal.

[1] Williams, Tom A.: Idea and Emotion in Traumatic Neurosis, Jour. Abnormal Psychology, 1910; Psychic Effects of Accidents, Tr. Southern Soc. Ry. Surg., and Monthly Cyclopedia, 1912, v, 47; v, 650, 722.

The patient had scarlet fever when a sophomore, without kidney disease, followed by insomnia, which recovered while he was a school superintendent in the country. He has no cause for worry, his hygiene is excellent, he formerly exercised much, but now does not feel like it, and loafs a great deal; he lacks sexual desire.

Examination.—This reveals a tired voice, exaggerated reflexes, great tenderness to pressure, and atrophic state of skin and hair, which he says is a family character. Blood-pressure is 114 and 78; there are no morbid psychologic phenomena.

Treatment and Result.—He was ordered massage, active exercise in wood chopping, and adrenal substance, 4 grains twice daily. In a fortnight adrenal was reduced to 2 grains. The only change was the disappearance of hyperesthesia, which I attributed to the massage. After a month, the voice was less tired, thinking and talking were easier, the muscles were stronger. However, headaches were still easily provoked, and asthenopia was still marked; blood-pressure was practically the same. The dose of adrenal was increased to 4 grains again. After this, there was a general improvement, but the patient found that if he extended his work beyond four hours a day he was totally unfit the following day; he was, however, doing a great deal of work in spite of this, even to completing a valuable work on the tariff in time for an insistent publisher. In this respect, he reminds one of Herbert Spencer, who had to limit his work to about four hours a day.

Case 4.—*History.*—A woman, aged 38, was referred in February, 1914, by Dr. Cooper of Hinton, W. Va., because of a postpuerperal psychosis, which greatly accentuated spells of melancholy which she had had for some years. The analysis of these showed that she felt the burden of child-bearing, which she wished to cease; but her husband was a hard man, of rigid views. She was well-developed and nourished, but food had no taste and she had lost interest in life. Blood-pressure was 112 and 84, and there was brown pigmentation of the linea alba, palate and forehead. She was placed at rest in a hospital and massaged and given adrenal substance in a dose of 2 grains twice daily. In a week, blood-pressure had fallen to 106 and 86, and the following day to 90 and 64, respectively. Practically no rise occurred for ten days. Then the dose of adrenal substance was doubled, whereupon there was an immediate rise of blood-pressure until it reached 118 and 94, where it steadily remained for a week even after she left hospital. After this, she went home; and I am informed that she remains well, while the dose of adrenal substance was reduced. She was very difficult to manage, as she desired to leave the hospital and return to her husband, and was obstinately resistant to all reason to the opposite; this idea persisted even after her recovery.

Case 5.—*History.*—A single man of 40 was referred to me by Dr. Bowen, in November, 1912. He was engaged for six months and was obsessed by a feeling that he was disqualified because of impotence. "Worrying about this had run him down so much that he lost his self-control," although he was no longer worried about that; the prospect of marriage in three weeks so horrified him that he no longer wanted to work; he wanted to go and hide; he had the belief that he "was down and out," and that he would lose his job as well. Telling his fiancée had not relieved him in the least, although she was most sympathetic. He had recovered from nervous indigestion some years ago until these troubles came. He had taken many drugs, including chloral hydrate. He was quickly fatigued after a short walk. His physician advised him to marry and go to Atlantic City, but he could not face it, being so "autosuggestible" as he put it; all he could do was to hang around his boarding house, where his fiancée lived.

Examination.—This showed exaggerated reflexes, small pupils, sunken eyes, very large, soft, weak pulse without cardiac dilatation, pigmented abdomen, and blood-pressure 102 and 80. Psychic examination was gone into most thoroughly, but it showed no important features, there being no night terrors, and the dreams, whether pleasant or unpleasant, not having pathologic significance. He was prescribed adrenal gland and wet packs to induce sleep. Three days later, the packs not having been taken, the blood-pressure was 100 and 80. The cooperation of his fiancée was enlisted, and his physician reports to me that he fully recovered and married; but I have not ascertained his present blood-pressure.

CASES WITHOUT IMPROVEMENT

Case 6.—*History.*—An ethnologist, aged 30, was referred by Dr. Henning, in February, 1914, because, as he put it, "his mind feels as a shadow only, and for two years most of the time nothing seemed real." The condition had begun suddenly two years ago, from what was believed autotoxication. He first noted it while doing professorial work at Columbia University when he could not clearly focus his thoughts, and was very much alarmed at it. As a matter of fact, he was a good deal concerned about his physical health for some years, having intestinal flatulence especially after worrying, which he did much; now and then he would have a foul tongue, severe indigestion and dizziness, and headaches in the morning, and he had attributed his condition to disordered metabolism. A love affair aggravated his condition; but this was duly settled by his marriage, which, however, did not improve his health.

He consulted a New York neurologist, who laughed at him and said his nerves were disordered, and ordered a vacation, which he took without benefit. He had a weak, heavy feeling, especially in the arms, and sudden insomnia without cause. During field work among the Indians in Oregon he began to feel better for a while, but finally became so ill that he went into a sanatorium, where a diagnosis was made of a psychoneurasthenic. There he gained 20 pounds, and felt practically well for a few weeks. Returning East in the train, he caught cold, and lost 8 pounds in ten days. Since then, three months before, he has felt out of sorts a great part of the time.

Examination.—The reflexes were slightly exaggerated, the frontalis reflex very markedly (this is obtained by tapping over the zygomatic ridge just in front of the antitragus, when a sharp twitch of the eyebrow occurs). The tongue was flabby and white, except just at the tip. The blood-pressure was 102 and 78; the patient was very swarthy, as he said he had always been. Moderate smoking and some constipation were the only other features noteworthy.

Treatment and Result.—The patient was given a standard dietary, massage and adrenal substance, 2 grains per day. In ten days the blood-pressure had become 108 and 86; he was irritable, had sinking spells in the chest, felt presentiments, started in his sleep at times, his eyes ached, and his feet become cold. He was sent to bed. Two weeks later, after being up two days, the blood-pressure was 90 and 68, and he felt very tired; his mind was not clear and there was pigmentation of the palate. The dose of adrenal substance was doubled; he was given one tablet of thyroid substance daily in addition. Three days later, the pressure was 104 and 78, and he was found to have increased 5 pounds in weight. Wood chopping was prescribed, and later on the blood-pressure was 117 and 88; but he felt bad. Four days later the blood-pressure was taken by Dr. Lemon, whom I had asked to cooperate in his care, when it was reported to be 112. The next day, after a sleepless night and a day of work, it was 98 and 68, and he had lost 2 pounds. I found he had taken no adrenal substance for five days because he had vomited after taking a decomposed portion. Eight days later the blood-pressure, taken by Dr. Lemon, was 100; three weeks later, 110; the next day, 110 and 78. The patient had been at work typewriting some notes, for he could do no thinking. A week later, blood-pressure was 100 and 82, and the pulse was very weak; he was prescribed 14 grains of adrenal substance per day. He thought it made him feel ill and gave it up; four days after, the blood-pressure, taken by Dr. Lemon, was 110. A week later, blood-pressure was 100 and 65, respectively, since when it has varied between this and 110. Meanwhile a blood examination was made by Dr. John Nichols, which was as follows: Red corpuscles, 5,900,000 per cubic millimeter; hemoglobin, 85 per cent.; corpuscular hemoglobin ratio, 0.72; leukocytes, 13,300 per cubic millimeter; proportion of white to red corpuscles, 1:440; small lymphocytes, 33.3 per cent.; large lymphocytes and large mononuclears, 8.3 per cent.; polymorphonuclears, 43.7 per cent.; esoinophils, 13.7 per cent.; mast cells, 1 per cent. The large proportion of eosinophils caused us to look for intestinal parasites. The examination of the feces was negative, and we are at a loss to account for this phenomenon.

The only result of the treatment is that the patient is now worrying a good deal less, and I am in hopes that he will learn to content himself with a good deal less output of work, that his functional inadequacy will not increase, and that a slight improvement may occur from the large dose of adrenal substance that we are now giving.

CASES ENDING FATALLY

Case 7.—*History.*—The 17-year-old daughter of a Boston physician, a brilliant girl, began to tire easily both in study and in play. She was recommended a long rest; so her father took her a trip to Europe, during which, however, she became more and more unable to respond to the interests of the visit; finally she was brought to visit an old friend in England at a private institution where I was making some psychologic studies; there I was asked to see her in consultation with the superintendent. By this time the asthenia was extreme, the pupils were dilated, and the bronzing of the skin most decided, so that the diagnosis of extreme hypo-adrenalism was manifest. The psychologic history was imperfect, as we were exceedingly anxious to improve the condition we found. Adrenal substance was given, both in the mouth and under the skin; but there was no response, and within a week the little girl died. Of the blood-pressure, I have no note; I do not think there was an instrument at that time, 1907, in the institution. The adrenals were taken out post mortem, and were found almost free of gland substance, nothing but some medulla and the capsule being left. A careful histologic examination showed no sign of inflammation, and we had to conclude that we were dealing with either a simple dystrophy or an autolysis of toxic origin.

DR. SCOTT'S REPORT

"Paraffin sections from two pieces were cut, and stained originally with eosin and Ehrlich's acid hematoxylin, more recently by hematoxylin and Biebrich scarlet method (Scott, 1912).

"Microscopically, the capsule is relatively thick, and surrounds a central region infiltrated with lymphocytes, and in some parts engorged with blood. Among the lymphocytes are large cells of irregular shape, with basophil cytoplasm and nuclei of variable size. These cells are frequently arranged in strands. In some places are a few cells whose cytoplasm is somewhat oxyphil (really amphophil with oxyphil preponderance), and whose nuclei are on the average smaller than those of the basophil cells. In some of the more recent sections an accessory cortex whose cells are like those of the second group is visible, lying in the capsule.

"Originally, before I had seen the accessory cortex, and being also more ignorant than I should have been, I was unable to determine the origin of the cells described above. At the present time it is quite clear that the first group is medullary and the second cortical, for by my method the cytoplasm in the medullary cells is predominantly basophil, and in the cortical cells predominantly oxyphil. Everywhere some of the cells have a degenerate appearance, even in the accessory cortex. To sum up, the cortex is practically all gone, but the medulla is much less destroyed.

"The process appears to be centripetal degeneration of the suprarenal cells, accompanied by lymphocytosis and patchy engorgement with blood. Unless pure lymphocytosis be inflammatory there are no signs of inflammation. Certainly there was no fibrosis going on at the time of death, in spite of the thick appearance of the capsule. This relatively thick capsule must be the original capsule and the scanty connective tissue of the cortex collapsed together after disappearance of the cortical cells; for if new formation of white fibrous tissue were going on, young fibroblasts would be present, and their cytoplasm would be obvious, being basophil. As it is, the connective tissue cells have unstained cytoplasm. I should like to emphasize this characteristic of fixed connective-tissue cells, namely, that when they are young, as in the fetus, granulation tissue and spindle-celled sarcomata, their cytoplasm is basophil enough to stain with Ehrlich's acid hematoxylin; but when they are mature they appear as naked nuclei, the cytoplasm being no longer sufficiently basophil to stain as before, nor sufficiently oxyphil to take up the acid dye."

Case 8.—*History.*—A married woman of 34, formerly a schoolteacher, was referred to me by Dr. Wilson on account of a nervous breakdown thought to be the result of twelve years of overwork, during which her weight had fallen from 114 to 97 pounds. She had been worse since her marriage three years before; she had not benefited from residence in a sanatorium or a removal of a uterine polypus. She had been anemic, and although she ate well she did not seem nourished. The heart was feeble. She was a woman of extraordinary good sense and did not worry; she had suffered all her life from inherited menstrual headaches which had prevented her rest; she used to have numbness in the leg; now even massage tires her.

Examination.—This showed feebleness of the reflexes, the abdominal and plantar being hardly perceptible; dilatation of the stomach, râles in the chest, pale mucous membrane, sunken eyes, and with it all a calm psyche. Weight was only 83 pounds; there was earthy brown pigmentation on the face, linea alba, a splotch below the xyphoid, and a faint discoloration on the arms and legs, while the coccyx and buttocks were very dark. Hemoglobin was 80 per cent., red cells 4¾ million, leukocytes 3,000; the systolic blood-pressure was 86 or less and the diastolic 66; it was difficult to measure. A week later, the pressure was 80 and 64, the reflexes needed reinforcement and her weight was 81 pounds. She went into the care of Dr. Marbury, and some weeks later she died. Necropsy was refused. It is impossible, therefore, to say whether the failure of adrenal secretion which caused her death was due to tuberculosis, as is often the case, or was a simple atrophy, as in the preceding case.

DIAGNOSIS, DIFFERENTIAL AND PSYCHIC

From conditions of physical causation characterized by great fatigability and feeble circulation the diagnosis would of course be made by the current procedures of clinical medicine, on which I need not enlarge here.

PSYCHASTHENIA

But the diagnosis from certain neurotic states requires specification. Patients of the type I have described are often labeled psychasthenics because of their *feeling* of inadequacy, the most prominent feature in psychasthenia. But the genesis of this feeling in hypo-adrenalism is a real physical tire occurring only during exertion, while the genesis of the inadequate feeling in psychasthenia is from a besetment or apprehension; and it always passes off while the patient is actively exerting himself with muscles or mind. If there is any feeling of panic because of the dread of his incapacity in a hypo-adrenal patient, this is a purely secondary and normal reaction to *physical fact*; and it is very easily dealt with by enlightenment, as my cases illustrate. Furthermore, *psychasthenics* present a vast series of intellectual, emotional and often motorial symptoms, the combination of which is characteristic, and the source of which can be detected by analysis of the psyche.

HYSTERIA, NOSOPHOBIA AND HYPOCHONDRIASIS

The seeming exhaustion and asthenia so often found as a result of a patient's belief *in* the malfunctioning of a stomach, heart, intestine, limb or brain is a phenomenon of mental attitude induced in the same way as is the case in the little child who suddenly becomes tired when his work or play is no longer to his liking. It is merely a lack of the toughening of psychologic fibers necessary to social welfare. It is a phenomenon induced by suggestion, and its name is hysteria. The real physical exhaustions which may occur after long continuance of hysteric attitudes like this are secondary to the depressing emotions sometimes induced in the patient's mind.[2]

From *melancholia* the incapacity of hypo-adrenalism is distinguished by the absence of the retardation of thought and movement always present in the true melancholic, in whom, furthermore, the responsiveness increases in speed and effectiveness as the day goes on and when the stimuli are augmented and longer continued, whereas in hypo-adrenalism the patient is at his best early in the day and the more work he does the worse he becomes.

Concerning *neurasthenia,* it should be evident that I have ceased to recognize any such nosologic rubric, regarding the term merely as a convenient cloak for failure to investigate a case sufficiently, and placing all the patients who were thus formerly diagnosed in categories corresponding to the etiologic factor which has determined their condition.

PATHOGENESIS

That prolonged hyperfunction may play a part in the etiology of hypo-adrenalism may be inferred from the facts furnished by posthyperthyroid myxedema (Wilson) and posthyperpituitary adiposity (Cushing and others). That hyperfunction of the adrenals may be induced psychologically is certain from the experiment of Cannon, which shows that the adrenal vein after fright contains a greatly increased amount of the secretion of the gland. The work of Crile too tends toward the belief that the form of prolonged fright known as anxiety may produce the same oversecretion as it undoubtedly does in the case of the thyroid gland.

Now both fright and anxiety are psychologic in induction; they are derived from ideas, an attitude of mind, which may be maintained from within by cogitation by animals with memory long after the disappearance of their initial cause. So that the conditions for the maintenance of that which makes for adrenal hyperfunction are ready in human beings to be called into action at all times, in those persons whose early training has increased fears and scruples about conduct and life.[3] It is only by proper, which means profound, analysis of the features which lead the clinician to penetrate to the foundations of human feelings and behavior that these patients can be understood, and the responses of their organism can be thereby "reconditioned" into health-bringing reactions. The way of doing so, true psychotherapy, is only an elaboration of the method employed by Pawlow to condition the vegetative reflexes of dogs.[4]

CONCLUSION

The cases reported, and the considerations involved, are far from completely presented, and I am well aware of this; but a consulting neurologist without the hospital facilities for research on a large scale is not well fitted to elaborate what is a very complex problem, namely, pathogenesis, complete clinical syndrome, and treatment of hypo-adrenalism. Although it would seem that prolonged psychic strain plays a part in the induction of the condition, yet on the one hand, thousands of individuals undergo long psychic strain and retain their adrenal sufficiency; indeed, perhaps, functionate excessively in that respect, while on the other hand, it is hardly credible that the adrenal inadequacy from which the Boston physician's daughter died was due to any excessive strain. We are reduced, then, to the hypothesis of the general inadequacy of the chromaffin system to explain cases of this kind. It may, indeed, be that inherent inadequacy is responsible for the failure of the adrenals in all cases in which there is no inflammatory or toxic process damaging the glands. I commend the problem to the resources of some large clinic. My paper is presented mainly in the hope of again drawing attention to the need of differentiation, even in a group of cases most typically neurasthenic.

PATHOLOGY

According to Scott,[5] Addison's disease must be due to loss of cortex, for accessory cortical tissue is a variable quality; but with so much other chromaffin tissue in the body, loss of the medulla should not be particularly harmful. On searching through the literature it appears that several similar cases are on record, details of which will be found in the works of Simmonds,[6] Karakascheff[7] and Bittorf.[8] Of these, some have the medulla intact, but the cortex gone, others have more or less cortex and medulla left, and yet others are merely fibrotic. Karakascheff,[7] working in Marchand's institute on specimens very similar, was, I believe, the first to prove destruction of the cortex to be responsible for Addison's disease. That the medulla is not essential to life is seen from his case of a child, 5 to 6 months old, in which the cortex was intact, but the medulla had been destroyed on both sides by hemorrhages, but so long before death that calcification had taken place. During the patient's stay in the hospital no symptoms were observed which were referable to the suprarenals. To show the importance of the cortex, he also brings forward a case in which, after death from other causes, one suprarenal was found to have been destroyed by tuberculosis some time previously and the other was hypertrophied, but in the cortex only, thus corresponding with the results obtained by previous workers after removing one suprarenal in young rabbits and guinea-pigs. Wiesel[9] studied ordinary tuberculous cases of Addison's disease, and found that the chromaffin tissue outside the suprarenals was also diminished in amount. He came to the conclusion that Addison's disease was due to deficiency of the whole chromaffin system; but it is hard to understand why tuberculous destruction of suprarenal medulla should be accompanied by simple disappearance of other chromaffin tissue, rather than by compensatory hypertrophy. His cases also all showed more or less destruction of cortex. In a second paper, Karakascheff (1906) is unable to confirm Wiesel's observations on general loss of chromaffin tissue, and deals with the well-known finding of destruction of suprarenals without Addison's disease. This he ascribes to the presence of a sufficient amount of accessory cortical tissue, and he further gives a detailed description of two such cases.

---

[2] Williams, Tom A.: Hysteria and Pseudo-Hysteria, Am. Jour. Med. Sc., September, 1910.

[3] [illegible] A.: Management of Juvenile Psychasthenia (Section [illegible] Wash. Med. An[illegible]s, 1913, xii, 31); Am. Jour. of [illegible] 2; Arch. Pediat., 1912; Pacific Med. Jour., 1910, Me[illegible] liii, 84; also in Psychotherapeutics, Badger, Boston, 1909.

[4] Williams, Tom A.: False and True Mental Healing, Tr. Brit. Med. Assn., and Br. Med. Jour., 1913; The Practical Import of Recent Work on Hysteria, The Journal A. M. A., Dec. 21, 1912.

[5] Scott: Proc. Path. Soc. Great Britain and Ireland, 1914, xviii, 419.

[6] Simmonds: Virchows Arch. f. path. Anat., 1903, clxxii, 480.

[7] Karakascheff: Beitr. z. path Anat. u. z. allg. Path., 1904, xxxvi, 401; 1906, xxxix, 373.

[8] Bittorf: Die Pathologie der Nebennieren und der Morbus Addisonii, Jena, G. Fischer, 1908.

[9] Wiesel: Ztschr. f. Heilk., Part 1, Path. Anat., 1903, xxiv, 257.

1705 N Street.

ABSTRACT OF DISCUSSION

DR. FRANK R. STARKEY, Philadelphia: In dealing with conditions in which the organs of internal secretion are involved, we must remember three things; first there is no such thing as a syndrome of adrenal insufficiency or of thyroid or pituitary insufficiency. This condition is always polyglandular or multiglandular. Although any of the organs of internal secretion may be most conspicuously involved, including the sexual organs, whether the condition be one of lowered function or excessive activity, the condition is always multiple. When one of the group is not functioning properly, the equilibrium of the entire chain is disturbed and the delicate balance normally existing between them is destroyed. Adynamia, inefficiency, mental and physical asthenia and melancholia are the keynote of this condition no matter what name we give the syndrome. Secondly, because of the multiple nature of the condition we must treat the entire group. Thirdly, it is a mistake to administer extracts or other products obtained from spayed animals. The glandular products of commerce are all derived from animals which have been raised for food purposes and they have been castrated in their early youth to improve their flesh for food purposes and they are neurasthenic and inefficient themselves. I do not know just why the medical profession has not recognized this before, for the difference in the texture and flavor of the flesh as well as in the temperament of these animals is so well known. The change from the bull to the ox or from the cock to the capon are conspicuous and familiar examples. The change that takes place in their organs of internal secretion is just as marked, so that the chemical composition and the physiologic action of glands obtained from spayed animals is very different from that of those derived from unspayed ones. In melasma or exophthalmic goiter, it is good organotherapy to treat all of the glands of internal secretion. We must bear these points in mind if we are to be successful in organotherapy.

DR. WALTER L. BIERRING, Des Moines, Ia.: I will refer to a case of melasma, the patient being the wife of an Iowa physician. She is 37 years old, and the mother of two healthy children. The condition has been observed about two years, and at present the pigmentation and hypotension are marked. The systolic pressure is 70 and the diastolic 45 mm. Hg. She is fully conscious of her condition, and therefore observant of symptoms and the effect of different plans of treatment. She feels that she is entirely sustained, and in fact her comfort depends on the taking of adrenal extract in doses of 3 grains three times a day. When in a state of extreme weakness, with an absent radial pulse, a single dose will bring back a palpable pulse, raise the blood-pressure appreciably, and increase her general strength. I agree with Dr. Starkey's remarks with regard to adrenal insufficiency as but a single factor in promoting the condition usually referred to as Addison's disease (melasma), because as in the case referred to, while life is sustained and an improvement of symptoms takes place under the substitution therapy, a cure of the condition by this means alone is not to be accomplished.

DR. TOM A. WILLIAMS, Washington, D. C.: I wish to thank Dr. Starkey for his hint concerning the extracts from nonspayed animals; but I cannot agree with the generalization that all endocrinian disorders are pluriglandular, although I have had many such mixed cases. The cases reported in my paper were specifically chosen because they seemed to represent the syndrome of adrenal insufficiency in its purity. Furthermore, in the cases which did not improve, mixed-gland therapy was ineffective; but I cannot say why the extra large dosage should prove conspicuously effective in one case while failing to assist others. I have brought the subject before this Section rather than that of neurology, in order that others may be encouraged to make more extensive and thorough observations than are possible for a neurologist without a large hospital service.

PAPILLOMA OF THE LARYNX *

HARMON SMITH, M.D.
NEW YORK

ETIOLOGY AND HISTOLOGY

Many papillomas spring from an inflammatory, syphilitic, tuberculous or even a malignant base, and histologically the malignant are but an exaggerated and continued form of the benign papilloma. A beginning hyperplasia on the vocal cord, irrespective of its underlying cause, may in due course of time assume proportions, varying from a small papular mound to a mass of epithelial growth filling the entire larynx. The proliferation in all cases is chiefly that of the epithelium, although there will be found fibrous thickenings occupying largely the posterior laryngeal wall and the posterior half of the vocal cords, which are seen quite frequently in habitual consumers of alcoholic beverages, also in newsboys, peddlers, hawkers and in those suffering from chronic or atrophic rhinitis. In singers, particularly those with soprano or tenor voices, these thickenings of the epithelium occur on the anterior third of the cord, and are the result possibly of muscle strain. From these hyperplasias spring pointed projections, which form the so-called papilloma. The surface may be papillary or may be smooth with but slight irregularities. The color may vary from a pale, dead white to a red or rose color; sometimes they are dark gray, at others the same color as the cord. Often they are mistaken for singers' nodules, particularly when located at the anterior third of the cord on its border; they may be single, broad-based, multiple or pedunculated with slender bases and vibrate with the respiratory current. They occur frequently in children as a mass filling the larynx, crowding one on the other, some with broad bases and others with pedunculated bases. The simple flat papilloma has but few branching projections, usually very white, with a surface cornification such as is seen in the hard, dry wart on the hand.

This type is observed in elderly men and should be regarded with suspicion, particularly if there is increased vascularity at the base. Often the microscope will reveal no indication of malignancy, as the bits of epithelium removed from the surface of the growth give no evidence of the character of the substratum; but later examination will define the malignant character of the underlying structure.

The frequency of papilloma as compared to other benign growths varies from 39 to 50 per cent. of all cases of benign laryngeal growths. When appearing singly, their most frequent locality is in the anterior half, while the multiple variety will be found most frequently in the posterior part of the larynx, but may also extend to the rest of the mucosa. In children, papilloma is the most frequent laryngeal growth and has been known to be congenital. Here they appear in the branching or budding form and may spring from

---

* Read before the Section on Laryngology, Otology and Rhinology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

the entire laryngeal mucosa. In the greater number of instances they reappear persistently when removed until such physiologic change takes place in the child as will occasion their permanent disappearance.

SYMPTOMS

A small papilloma may exist on the vocal cord of an adult for a long time without attracting the attention of the individual or his associates, either by local discomfort or alteration in voice. In fact, singers have been able to continue their professional work with a moderate-sized papilloma on the cord, without noticeable alteration, except perchance a failure to produce properly one particular note in the limits of their vocal register. In the majority of instances, however, the most noticeable symptom of the existence of papilloma of the larynx is a husky voice or some deviation from the normal. Hoarseness, with now and then a falsetto note, or the reduction of the voice to a subdued whisper is most marked in the adult. The single papilloma when situated on the anterior third of the cord will produce considerably more vocal disturbance than when situated elsewhere. In the multiple variety, particularly in children, the voice is often reduced to a low, hoarse whisper and the cry of the infant, when multiple papillomas are present, resembles that squeaky sound often noted in cases of croup or acute edema of the larynx. The child is often dyspneic and under exercise may become cyanotic. During excitement the facial expression assumes a peculiar aspect denoting insufficient respiration. The same condition is often seen in children in whom large lymphoid masses exist both at the base of the tongue and in the nasopharynx, but when hoarseness has been a prevalent symptom in the child over a continued period, although tonsils and adenoids are sufficiently hypertrophied to warrant the supposition that they are responsible for the hoarseness, it is nevertheless advisable to bear in mind the possible existence of papilloma. In children the long continued presence of papilloma causes irritability, impairs digestion, narrows the chest by insufficient respiration and incidentally reduces the vitality owing to improper oxygenation of the blood. They become pale, anemic and emaciated, although exceptions to this rule are often seen, when the child is fat, thick-necked and of good color.

FREQUENCY

Judging from the reports formerly submitted by Fauvel and others, we can reasonably conclude that in the early history of laryngology more of these neoplasms existed than at present. The reason for this lessening in frequency may be attributed, according to Wright, to two cause:

> First, the number of trifling laryngeal complaints which come under the observation of the laryngologist to-day has enormously increased; second, to-day treatment in these cases, but especially early and judicial treatment of nasal and pharyngeal diseases has greatly cut down the liability to inflammatory benign laryngeal neoplasms.

Their occurrence in children is comparatively rare. Clark found only twelve cases in the examination of 12,623 children under 14 years of age at the Massachusetts General Hospital. Over a period of fifteen years there have come under my care and treatment at the Manhattan Eye, Ear and Throat Hospital only eight patients, and I have had occasion to observe in the clinics of my confrères only a few additional ones. In 300 tumors of the larynx reported by Fauvel, 206 were papillomas, and of this number nine were in children under the age of 15 years. In the reports of 302 cases of combined papilloma and fibroma of the larynx, 209 occurred in men and 93 in women, thus showing a preponderating tendency of this growth in men.

TREATMENT

Laryngofissure was at one time believed to be effective in the removal of these growths and in the prevention of their recurrence, but the experience of many operators has demonstrated that this is not only ineffective in the majority of instances, but permanently injures the voice, so that it is now deemed an absolutely unjustifiable procedure. Abbey reports a case in which thyrotomy was performed four times, with recurrence of the growth after each operation, although the bases of the tumors were cauterized; tracheotomy had finally to be done ere the condition was overcome. Lindon reports a case in which thyrotomy was performed seventeen times; but the case finally resulted in laryngeal stenosis, necessitating permanent use of the tracheal tube. In adults, removal of the growth either by indirect or direct laryngoscopy offers fair hope of its eradication, although in many instances recurrence takes place even though the base is cauterized. In the multiple variety in children, surgical removal by direct methods not only results in recurrence of the growth at the site of operation, but likewise occasions new growths to spring up on adjacent mucosa, even on the epiglottis, aryepiglottic folds and trachea. Occasionally in children the growths may be removed by the direct method and the bases fulgurated, and the operator be able to keep ahead of the recurrence of the growths until such physiologic change takes place as will result in their permanent disappearance. In this way the necessity for a tracheotomy-tube may be obviated. Fulguration will result in the disappearance temporarily of the growth, and the recurrence is postponed longer than when operative measures alone are employed; but fulguration has been disappointing as a permanent and positive relief for these growths in children. About the time of puberty or in adults the tendency to recurrence is markedly less, and removal either by fulguration or instrumentation presents more favorable prognosis as regards recurrence. To apply the fulgurating spark with sufficient intensity to be effective it is necessary to have the cauterizing point well insulated to prevent short-circuiting with the metal laryngeal spatula. It is also necessary to have the larynx as free from secretions as possible, as the wet mucous surface tends to disseminate the spark so that its concentration on the growth itself is ineffective. It is also necessary to bear in mind that ether and chloroform fumes are highly inflammable and the child should be permitted to breathe for a half minute at least after the anesthesia is removed ere the fulgurating spark is applied.

In some of my cases I have been able to apply the fulgurating spark with cocain anesthesia alone and I believe this to be the better method if the child is at all tractable. The fulgurating tip should be placed directly on the wart before the spark is turned on and also the current shut off before the point is removed; otherwise the current will be transmitted to the metallic speculum. When a proper spark has been obtained in the larynx the transmission of light may be seen externally, and a good illumination is observable simulating that of transillumination of the sinuses. Unless fulguration is excessive no edema or other untoward symptoms result, and the larynx may be entirely cleared of its neoplasms at one sitting, provided the secretions and the tractability of the child permit its continuance. In one or two instances, however, I have seen considerable edema follow fulguration. In one case (Case 3), particularly, the larynx began to swell almost immediately after the application of the spark, but in this instance my associate, Dr. MacPherson, desired to be very thorough as the parents wished to remove the child to another city, and we hoped to get rid of the growths entirely by the one application. The edema following the fulguration was so threatening that it was deemed advisable to do a tracheotomy. In the other cases, however, there were no indications of dyspnea, cyanosis or any evidence of pain on the part of the patients. The best surgical method for these cases and the one method which is most invaluable in meeting the requirements of multiple papilloma in children is tracheotomy. This was recommended years ago by Hunter Mackenzie, and with the exception of a few cases has proved a most efficient therapeutic measure.

Tracheotomy, *per se*, is virtually without danger, particularly if all surgical precautions are employed and the child is placed under a croup tent for a few days subsequent to the operation. It is necessary for the child to wear this tube for a period varying from six months to two years, depending largely on the age of the patient and the time necessary for the physiologic change to take place, which eventuates in the disappearance of the growths. I have seen one case in which marked fibrosis resulted from the frequent removal of a single papilloma in the anterior commissure of the larynx, and from the anterior border of this fibrosis a large single papilloma projected out between the vocal cords. This case had been under observation for a long period of years, but both fibrosis and papilloma disappeared between one visit to the clinic and the next, a period of about two weeks. It demonstrated beyond question the conclusions advanced by Dr. Jonathan Wright a few years previously, based on observations of the same case, that a physiologic change would at some time occur when this growth would disappear. In accordance with his prognosis, not only the papilloma but the fibrosis disappeared within a period of a month, so that the voice became almost normal.

RADIUM

Radium has been applied in a number of instances, and in some cases marvelous results have been obtained. Abbey reports a case in which the application of 100 mg. of radium kept in position for one-half hour resulted in the rapid disappearance of the growth. Similar experiences have been related by Harris and Culbert. In my experience, however, there is one case presenting sufficient interest to warrant a detailed account, not yielding to radium.

CASE 1.—A. V., aged 15, had from birth a husky voice, leading to the supposition that there were congenital growths in the larynx. When about 5 years of age he was operated on by Dr. Culbert for multiple laryngeal papilloma associated with the characteristic symptoms. Laryngofissure was performed at that time and the entire contents of the larynx cleaned out and the mucosa was cauterized. Within two weeks there was noticeable improvement, which improvement lasted for about six years. At the end of that time there began a recurrence of the symptoms such as hoarseness, dyspnea and imperfect voice production. As this continued to increase he came to my clinic at the Manhattan Eye, Ear and Throat Hospital, Sept. 19, 1911, at which time there could be seen a number of warts on both sides of the larynx, both anteriorly and posteriorly. The voice was very imperfect and of a hoarse, whispering character. The evidence of the former laryngofissure was observable and the movement of the larynx was somewhat imperfect. A tracheotomy was performed and the tube worn for the space of nearly a year. The growths were removed under cocain anesthesia by the direct method, it being reasonable to suppose that surgical removal at this stage, when the patient was approaching puberty, might result in a permanent eradication. They recurred with regular frequency. It was later determined, April 23, 1912, that fulguration should be tried without surgical interference. The growths disappeared following the fulguration and the necessity for another seance did not occur for a period of three months, when they were again removed in the same manner. They recurred again at the end of two months, when the third application was made. This time they recurred at the end of a month. After each fulguration, however, a less number of growths returned and the right side of the larynx cleared up almost entirely. The persistent fibrosis together with a large sessile papilloma remained on the left vocal cord and ventricular band. The obstruction to laryngeal respiration, however, was so slight that the tracheotomy-tube was removed in October, 1912, since which time local treatment and rest together with partial removal of the growth, whenever it encroached on the larynx, has followed. This procedure was carried out in the belief that the boy was approaching that physiologic change incident to puberty which would result in a permanent disappearance.

Radium Treatment.—As this did not take place it was decided in March to employ radium. Through the kindness of Dr. Wolf Freudenthal a tube of radium was placed in the larynx after cocainization, March 19, 1914, and left in for about three-quarters of an hour. There appeared to be a disappearance of some of the thickening around the growth.

March 26, it was again applied for a period of about one-half hour following which there seemed to be a marked reaction. The voice has improved under the application of the radium, but the growth continues to recur. There have been three additional applications of radium, varying from fifteen minutes to three-quarters of an hour, but so far as clinical observation goes there has been no diminution in the size of the growth. The boy is in good health, speaks with a hoarse voice, and while the radium has apparently had little or no effect on it, my belief still holds that physiologic change will ultimately bring about that which therapeutic measures have failed to accomplish.

Delavan suggested years ago the employment of alcohol locally applied for the cure of papilloma of the larynx, and in many instances it has proved effective. I have applied it in a number of cases of papilloma of the larynx in children without any apparent effect, but here their multiplicity and the large area of mucosal involvement naturally lessen its effectiveness. In adults, the conditions are entirely different and the shrinking and drying properties of alcohol tend to bleach and dry the superficial epithelial surface so that it might disappear by autoclysis as the tonsil does with increasing age.

Shurly has recommended the employment of *Thuja occidentalis* locally and internally. This also failed in my cases of multiple papilloma of the larynx in children. Castor oil, sodium salicylate, zinc chlorid, silver nitrate, iodin and various other therapeutic agents I have tried persistently, but without any apparent effect. In my first series of cases, reported some years ago, the last case of the series had been persistent in the return of the warts when removed by the direct method and had not responded to tracheotomy, although the tube had been worn over a year. One application of the fulgurating spark resulted in their immediate disappearance, from which I concluded that fulguration would be the solution to the problem. Subsequent experience, however, has disabused my mind of this hope as by fulguration the growths can be immediately and effectively removed; but they return with the same regularity as when removed by surgical means, although the length of time intermediate between the destruction of the growth and its reappearance is longer.

From the fact that in some instances of multiple papilloma of the larynx removal will result not only in the reappearance of these growths in their former situation, but likewise on adjacent mucous membranes, it has occurred to me that there might be an infectivity embodied in certain of these growths, in which, if an emulsion were made of the growth itself, hypodermic injection might prove beneficial in their complete eradication. Since giving expression to these ideas on several occasions no case has presented itself in which a sufficient quantity of the growths could be obtained for this purpose. It is a well-known fact, however, that not only laryngeal warts but skin warts will reproduce themselves on abraded skin or mucous surfaces in some instances and not in others.

SEQUELS

Barring the few unfortunate instances in which wearing the tracheotomy tube over long periods of years has not eventuated in the disappearance of the papilloma, the prognosis is favorable to their disappearance. The voice, however, in the majority of instances is altered in some degree and probably in children in whom multiple papillomas have existed it may never attain perfection thereafter. In isolated, pedunculated papilloma on the vocal cords of the adult removal is ordinarily followed by complete restoration of voice. When the tracheal tube has been worn for a year or more the cartilaginous rings lose their elasticity and one the withdrawal of the tracheotomy tube the trachea collapses on inspiration. This may be largely obviated by frequent withdrawals of the tube during the course of the treatment, so that the tracheal rings may expand and contract during the respiratory act. When the time has arrived for the permanent withdrawal of the tube it is often advisable to insert tubes diminishing in size until the minimum-sized tube has been reached, after which time it is sometimes necessary to insert a rubber catheter until the larynx and subglottic structures have resumed their normal resiliency. A straight tracheal tube, with just sufficient flange at the end to hold it within the tracheal incision, is often better than one which is curved and extends far down into the lumen of the trachea, for in this way the thickening incident to friction against the tracheal mucosa is obviated. In cases of multiple papilloma in children after tracheotomy has been performed, close observation will reveal these growths extending into the upper part of the tracheal wound and impinging against the tube. I have seen the entire space between the tracheal wound and the larynx almost completely filled with these growths following operations on the laryngeal neoplasms. Occasionally there will result the necessity for a plastic operation to close the tracheal wound completely, but in the majority of instances the withdrawal of the tube will be followed by the wound closing by granulation.

REPORT OF CASES

Case 2.—An Italian boy, aged 7, presented himself at my clinic in 1909 complaining of hoarseness from birth. Examination of the larynx revealed multiple papillomas. One of the papillomas was removed for microscopic examination, and a syphilitic base was revealed. One injection of salvarsan resulted in the complete disappearance of all the growths, within about three weeks time. The voice was not restored, but was markedly improved from a hoarse whispering voice to a hoarse loud voice. About two months after the injection of salvarsan the boy was brought to the clinic suffering from pronounced jaundice, which did not respond to treatment. His condition became worse until he died about three weeks after observation. No necropsy was permitted. Treatment for his inherited syphilis was instituted at a time when large single doses of salvarsan were being administered, and I have often wondered if repeated smaller doses would not have resulted in the same favorable outcome to the laryngeal condition and possibly obviated the liver complication.

Case 3.—J. S., a boy, aged 3½ years, was admitted to the clinic June 27, 1912. He had complained of hoarseness with whispering voice dating back eighteen months. He had frequent attacks of dyspnea and at all times suffered from difficult respiration. His health was otherwise good. No specific history was obtainable. Examination of the larynx revealed multiple papillomas on both vocal cords and extending from the anterior commissure to the arytenoids. The color was that of the mucous membrane. July 11, fulguration was applied by the use of the Jackson speculum under chloroform anesthesia. Repeated applications of the fulgurating spark were made, July 18, August 1 and 15, and September 5 and 12. After each of these fulgurations the larynx would remain clear of laryngeal warts for a short space when they would recur. On the whole, the larynx showed some improvement up to the time of the last fulguration, September 12. At this time it was decided to make a severe test of the fulgurating spark, as it was necessary for the child to be removed to a different locality where he would not have opportunity of treatment or observation. Following this seance there was marked laryngeal reaction and labored breathing, continuing for five days. As the reaction was so severe it was determined to do a tracheotomy, which was performed, September 17. The next attempt at fulguration was made October 24, but as the patient took the anesthetic badly the spark was not applied. Subsequent to this, a number of fulgurations were given at varying intervals, it being easier of accomplishment after the tracheotomy-tube was in place. On the night of January 20, about 4 a. m., the child pulled out the tracheotomy-tube and died from asphyxia before the house surgeon could reach the ward. The nurse made an unsuccessful attempt to reinsert the tube.

Case 4.—E. F., a girl, aged 3 years, came to the clinic July 11, 1912, with symptoms of whispering voice and difficult breathing since birth. Her health had otherwise been always good. There was no history of either tuberculosis or syphilis. Examination of the larynx revealed multiple papillomas. Fulguration was first applied July 12, and there was immediate improvement in the voice. It was again applied July 18 and August 1 and 15, when she returned home and came to the hospital for treatment. September 1 she developed a diffuse bronchitis and was brought to the hospital; she recovered. September 28 she was fulgurated, following which there was some edema. In October she developed diphtheria in the ward and an immediate dose of 10,000 units of antitoxin was administered. She was carried to the infectious hospital where intubation was done, but died a few days later of pneumonia.

Case 5.—A history of this case has been mislaid, so that the report is made from memory. The patient was a little girl about 3 years old, who complained of hoarseness for two years. She was brought to the clinic where in addition to tonsils and adenoids the presence of laryngeal papilloma was discovered. Under local anesthesia fulguration was applied at varying intervals for three times, after each of which the larynx cleared up and the voice became better. There was no history of tuberculosis or syphilis. The child was well nourished and thick-necked. There was a long period following the last intubation in which there was no recurrence of the papillomatous growths. Just as hope was being raised that we had succeeded at last in overcoming the papilloma, the child developed measles and was taken to the Willard-Parker Hospital, where she recovered from her measles without any recurrence of the growths. Since the dismissal from the hospital no subsequent history has been obtainable.

44 West Forty-Ninth Street.

ABSTRACT OF DISCUSSION

Dr. Robert Levy, Denver: It is interesting to know that Dr. Smith has recommended in his paper a return to the thought expressed a great many years ago concerning the value of treatment by tracheotomy and waiting for the spontaneous disappearance of these growths. They have a certain life history and tend to disappear spontaneously, and so when we do a tracheotomy we put the larynx at rest and wait until this occurs. In a paper read a good many years ago I related a case that, to my mind, proved this and so up to a very recent time I have held that view and treated my patients accordingly. As a matter of fact, however, I think the time is coming, or has come, when we most modify our views somewhat. The reason, I believe, for the recurrence of these papillomas with such marked rapidity after they have been removed is that they were not removed thoroughly by our older methods, and this is particularly forced on one by the reading of the last article of Albrecht, in which he reports nine cases, some of which had been operated on by the ordinary way, by direct endoscopy, with constant recurrence, after which they were operated on by the suspension method. It was noticeable that the patients got well quickly and remained well. It may be that in all these cases the time had come for these growths to disappear, but the fact remains that no recurrence took place after they had been removed by the suspension method, while after their removal by the older method they did return rapidly. Of course, the time is somewhat recent to state that as a fact on which to base our future conduct in these cases. We can, however, by this means remove these growths very thoroughly. I have a case at present that proves Dr. Smith's infection theory; a child eight months old had a small papilloma in the anterior commissure; under direct suspension this was removed. I thought it a particularly easy case and one that would remain well but the growth returned with increased activity.

Dr. Samuel Iglauer, Cincinnati: Dr. Smith brought out most of the methods of treatment. In the series of cases that Dr. Levy referred to, I think the electrocautery was used after the removal of the papillomas. The removal of the papilloma by the suspension method, then cauterization, and perhaps prophylactic intubation to prevent edema would be good treatment. I now have two cases under treatment in which, through the kindness of Dr. Ransohoff, I have been able to employ radium. In one case, in an infant, the radium tubes were applied on the outside of the neck for several hours. A slight burn occurred on the skin but the papilloma did not disappear. In the second case I put the radium inside the larynx three times, with better results, and I think perhaps if Dr. Smith were to apply the radium for longer periods he might get better results. In my case it was applied five or six hours with no bad effects. The first time I tried radium I had some trouble in keeping the capsule in the larynx and I hit on this method; I put the capsule in a rubber tube slit on the side, like a drainage tube, with a string tied to it. The V-shaped cuts in the rubber tube acted like flanges to retain it in position. It held so well that on one occasion I had some trouble in removing it.

What is Sleep?—That is a nice problem for us to tackle. A French author said of life what we may say of sleep; it does not define itself, it simply manifests itself.—H. Crichton Miller, *Medical Press and Circular.*

THE TREATMENT OF CHRONIC PYELITIS *

J. T. GERAGHTY, M.D.

BALTIMORE

It is surprising how slow we have been to appreciate the benefits to be derived from pelvic lavage for the treatment of chronic pyelitis. It is probable that much of our tardiness in adopting this extremely beneficial treatment is largely due to insufficient methods of diagnosis, so that we were not able to select with a sufficient degree of accuracy the cases most suitable for lavage.

The successful treatment of chronic pyelitis is largely dependent on accurate examination and diagnosis. While it has been denied that chronic pyelitis can exist without involvement of the parenchyma, clinical experience and examination of pathologic material prove that a pure pyelitis can occur. Most cases of pyelitis are secondary to an infection of the kidney parenchyma or part of a pyelonephritis. The cases of pyelitis which are only a part of a pyelonephritis will not be discussed in this paper. While it is probably true, in most instances, that a pyelitis is secondary to a previous infection of the parenchyma, in many cases this infection in the parenchyma entirely disappears, leaving the pelvis and ureter alone involved. The majority of kidney infections, nontuberculous, are undoubtedly secondary to some predisposing factor, such as stone, tumor, stricture or other mechanical obstruction, and the amelioration or cure of the infection in such cases is dependent on the removal of the predisposing cause. It is surprising how frequently even a severe infection of the kidney and pelvis will disappear when these factors have been remedied. The differentiation of simple pyelitis from pyelonephritis may be quite difficult, and is practically impossible except by the employment of functional estimation. In pyelonephritis the function will be decreased, while, if it is a pure pyelitis, no reduction in function will be observed. Of course, one cannot always exclude the presence of a slight area of pyelonephritis which may not be sufficient to reduce the function, while in occasional cases the function may be diminished as the result of a previous pyelonephritis which has healed, leaving the pelvis still involved. One such case probably of this type is reported below. The presence or absence of albumin in the catheterized specimens has only occasionally been of diagnostic value in our hands. Pyelography is useful also in showing us changes which have occurred in the pelvis as a result of the infection, and gives us information which may be of considerable value from the point of view of prognosis. In our experience, the organism causing the infection has very little influence on the prognosis.

TREATMENT

When it has been determined accurately that we are dealing with a simple pyelitis, renal lavage is instituted, and in these selected cases the results of treatment have been little short of brilliant. We employed various solutions, such as argyrol, protargol, liquor formaldehydi, nitrate, phenol (carbolic acid) and aluminum acetate, but at the present time we have come to depend largely on silver nitrate and liquor formaldehydi. Vaccines have proved of very doubtful value, although we have employed them extensively. Hexamethylenamin has also proved of questionable value as far as the renal infection is concerned. Its value at the kidney level, as Hinman has shown, is very slight. The cases in which the lavage has been employed have been divided into the following groups:

---

* From the Urological Department of the Johns Hopkins Hospital.

* Read before the Section on Genito-Urinary Diseases at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

1. Those in which the catheterized specimen shows the presence of a fairly active infection with a normal function and in which the collargol shows very few changes in the pelvic outline. The prognosis in this type of case is very favorable. We begin with injections of from 5 to 10 c.c. of 0.5 per cent. silver nitrate, the tip of the catheter being rather low down in the ureter. It seems advisable to inject from low down as in the majority of cases there is present also a certain degree of ureteritis, as well as pyelitis. The strength of the injection is gradually increased until we have used as strong as 5 per cent. It does not seem advisable to begin to inject with a very strong solution, because the reaction may be rather severe. The tolerance of the individual and the degree of reaction should be tested out first with weaker solutions. The occurrence of a fairly good reaction, however, is not to be avoided, as in the majority of cases this reaction is necessary before the infection can be eliminated. The splendid results obtained can be seen from the histories of a few appended cases:

Case 1.—P. L. P., aged 43, was always healthy until November, 1912, when he was suddenly seized with chills and fever and soon afterward developed frequency and painful micturition. Since then he has had repeated attacks of chills and fever, the urine has been cloudy and the general health failing. Patient has lost 40 pounds during the last six months. Seen Jan. 19, 1913. Bladder urine was cloudy and contained pus and colon bacilli. Ureter catheterization showed a normal and equal function on each side, but from the right kidney the urine was cloudy and contained pus and colon bacilli. From the left kidney the urine was clear macroscopically and on microscopic examination showed no pus-cells or bacteria. Collargol injection showed the pelvis and ureter apparently normal.

Jan. 26, 1913, the right kidney was catheterized and 10 c.c. of 0.5 per cent. silver nitrate was introduced. Following this first injection there was a marked improvement in the bladder urine. Four days later he was again catheterized and 0.5 per cent. silver nitrate again injected. Following the second injection there was some reaction. Within a week the bladder urine became perfectly clear and negative for infection on microscopic examination. Patient has remained entirely well and there has been no recurrence of the infection.

Another case is of particular interest because there was present a double infection, a *Staphylococcus albus* and a colon bacillus.

Case 2.—S, aged 38, seen March, 1914, had an unimportant past history except that he had had numerous attacks of gonorrhea. In December, 1912, patient had a chill and an elevation of temperature ranging from 102 to 106 F. Some days later he developed pain in the left kidney region. This attack of chills and fever cleared up in about three weeks. Since then he has had numerous attacks of chills and fever, sometimes associated with aching pain in the left lower back, which does not radiate. The urine has been cloudy since the onset of his present trouble. Very little frequency is present, and practically no urinary symptoms. On examination, patient is a slender, healthy-looking man. The kidneys are both slightly descended but do not seem enlarged. The bladder urine is quite cloudy and on microscopic examination contains pus, bacilli and cocci. (Cultures show these organisms to be colon and *Staphylococcus albus*, respectively.) Catheterization of the kidneys showed the urine from each side to contain pus, bacilli and cocci. The function was equal and normal on each side. Roentgen examination of the kidney was negative, and pyelography showed both pelves and ureters practically normal.

March 27, 1914, 8 c.c. of 0.5 per cent. silver nitrate was injected into each kidney. No reaction followed. March 30, 2 per cent. silver nitrate was injected into each kidney and this was followed by a moderate amount of pain in each kidney, more marked on the right side. April 6, 6 c.c. 2 per cent. silver nitrate was injected into each kidney pelvis. There was no pain following this treatment. April 11, the urine from each kidney was still slightly turbid and on microscopic examination contained a fair number of leukocytes, some bacilli and no cocci. Six c.c. of 5 per cent. silver nitrate was injected into each kidney pelvis. The patient suffered from considerable pain following the treatment and was rather uncomfortable for several days. Within three days the urine became entirely clear and repeated examinations failed to show any presence of infection. Patient has remained well until the present date. It is of interest that the staphylococcus disappeared before the colon, the colon infection being dislodged only by the use of the strong silver-nitrate solution.

The following case is of interest because of the marked difference in function between the two sides, and the presence of a double infection in the right kidney and a coccus infection in the left.

Case 3.—O., aged 42, was seen April 3, 1914, with a history dating back seven months. The onset of symptoms was with sharp, sudden pain in the right side, fever, nausea and vomiting. Since this first acute attack the patient has had several less severe. Has dull pain at times in the right flank and back and some frequency of urination and urgency. Has noticed that the urine has been quite cloudy since the beginning of his illness. On examination, patient is a well-nourished man, the right kidney is not palpable but there is some tenderness on deep pressure. Leukocytes on admission, 16,000. Roentgen examination is negative, bladder urine cloudy, specific gravity 1.025, acid, no sugar, trace of albumin, microscopically numerous pus-cells, staphylococci and bacilli.

April 7, cystoscopic examination and catheterization of ureters. Bladder somewhat injected, trigon reddened. Catheterization of the ureters gave the following results, the urine being collected for one-half hour.

Right:	Left:
Urine cloudy.	Urine clear.
Phthalein appeared in 7 min.	Phthalein appeared in 6 min.
Excretion 2 per cent. plus.	Excretion 29 per cent.
Urea 0.02 per cent.	Urea 0.17 per cent.
Microscopically: pus-cells, staphylococci and bacilli.	Microscopically: no pus-cells, no bacilli but some staphylococci.

On account of the leakage it was impossible to get an accurate estimation of the function at this examination, but 29 per cent. was excreted by the left kidney, 2 per cent. was collected from the right and the leakage amounted to 14 per cent. Even adding the leakage to the excretion of the right kidney, it can be seen that the function is only half that of the left. A collargol showed the pelves normal. Pelvic lavage was begun, at first using 1:4,000 liquor formaldehydi, later 0.5 per cent. silver, and this was gradually increased to 2 per cent. April 30, the findings were as follows:

Right:	Left:
Urine macroscopically clear but on microscopic examination contains a few bacilli and—cocci and an occasional pus-cell. Amount 21 c.c.	The urine was macroscopically clear but still contained groups of cocci. Amount 53 c.c.
Phthalein 12 per cent.	Phthalein 30 per cent.
Urea 0.6 gm.	Urea 0.7 gm.

No leakage.

Patient received two subsequent treatments at weekly intervals, with 3 per cent. silver nitrate. The urine at the last examination was entirely negative microscopically, one month after the last treatment. The difference in function between these two sides, both in the beginning and at the end of treatment, indicates either that the function of the right kidney was reduced from a previous pyelonephritis which had been cleared up, or that we are dealing with the infantile type of kidney. The equal concentration on each side would rather indicate the infantile type.

Another case illustrating the value of the strong silver nitrate when weaker solutions had absolutely failed to eliminate it, is the following:

CASE 4.—G. R. M., aged 20, was seen July 14, 1913. About two months ago patient noticed that he began to have frequency of urination and considerable pain on emptying the bladder. His general health seems good; the bladder urine is cloudy microscopically, shows pus and diplococci, which on culture prove to be a variety of *Staphylococcus albus*. On ureteral catheterization, the urine from the left kidney was slightly cloudy and on microscopic examination contained pus-cells and numerous cocci. The urine from the right kidney was clear. A pyelogram of the right kidney and ureter seemed perfectly normal. Roentgenoscopy was negative for stone. Total function was normal and the function of the left kidney was normal and equal to that of the right, as determined by phenolsulphonephthalein. Pelvic lavage was instituted and patient received four lavages of 1:4,000 liquor formaldehydi at five-day intervals; then two lavages of 1 per cent. silver nitrate at intervals of a week. At the end of this time there was no change in the infection present. It was then decided to inject the kidney pelvis with 5 per cent. silver nitrate, and about 10 c.c. was employed. Following this, patient had a fairly severe pain in the kidney region for several hours. The next day the bladder urine was smoky and on microscopic examination contained a good many blood-cells and a few leukocytes, but no bacteria. On the fourth day following the employment of the 5 per cent. silver nitrate the bladder urine was absolutely clear, microscopically negative for cocci and pus-cells. Patient was kept under observation for several weeks, and during that time the urine remained perfectly normal. Six months later he reported that he had remained well up to that time and that the urine was perfectly clear and normal-looking.

It is of interest here that no result was obtained until the strong silver nitrate had been employed and a considerable reaction produced.

2. In long-standing pelvic infections, in which marked changes have occurred in the pelvic wall, as shown by pyelography, and in which one finds in the catheterized specimens very few leukocytes and only an occasional bacterium, the prognosis is not so favorable. The infection in these cases is of a low grade, usually quite deep in the pelvic wall, so that it is very difficult to eradicate it. Occasionally, in these cases, after a certain amount of treatment, the infection may apparently disappear, but it usually recurs again. These cases sometimes have slight exacerbations when one finds considerable pus and bacteria and at other times almost a perfectly negative urine, as far as the most careful microscopic examination can determine. One should be very careful about giving a good prognosis as far as eradication of infection is concerned, in this class of case.

3. In infections of the kidney pelvis, associated with a certain amount of pelvic dilatation and varying amounts of residual urine, pelvic lavage has also been of comparatively little value. The most unfavorable are those in which the condition is largely a bacteriuria. While it is possible in many cases by lavage to improve to some extent the character of the urine and decrease the severity of infection, the results of lavage have not been particularly gratifying so far as complete eradication of infection is concerned. In cases in which nephrectomy is contra-indicated, pelvic lavage should be tried because not infrequently, while it is impossible to entirely eradicate the infection, a great improvement in the condition may follow renal drainage and lavage. In these infections with mild hydronephrosis, silver nitrate seems to give less favorable results than solutions of formaldehyd, which we employ in strength from 1: 5,000 to 1: 2,000. Under such conditions, it is advisable to introduce a catheter into the pelvis of the kidney so as completely to empty the residual urine.

ABSTRACT OF DISCUSSION

DR. I. S. KOLL, Chicago: I heartily agree with Dr. Geraghty as to the indications for pelvic lavage, that is, as differentiating a pyelitis from a pyelonephritis. My experimental work, however, made me believe that as a pathologic entity we have no such thing as a pyelitis, because twenty-four hours after 1 c.c. of a twenty-four-hour colon-bacillus culture is injected into the ureter, the kidney, when examined histologically, will show a definite pyelonephritis, care having been taken not to traumatize the kidney or ureter. It certainly was a revelation to hear that any one was brave enough to inject silver nitrate in 5 per cent. solution into the ureter and pelvis of the kidney. I believe everything Dr. Geraghty says, but let us, for a moment, consider the rationale of the use of nitrate of silver. In 5 per cent. strength it is a powerful astringent and escharotic, and has a tendency to form a coagulation of the epithelial cells and prevent any penetration of the drug itself. It therefore has not much chance of doing good. The work that I did with liquor alumini acetatis five years ago showed that in chronic pyelitis cases there is a definite penetration of the bacteria into the tissues. How long has Dr. Geraghty followed his cases? What percentage has shown recurrences? When does he cease to use lavage of the kidney? I differentiate strongly between a clinical cure and a bacterial cure. I never stop lavaging in my cases until a catheterized specimen from the ureter of the infected side fails to give a culture of the organism, which in 98 per cent. of the cases is due to the colon bacillus. That is an all-important point, I believe, and I am sure that most of us have had recurrences time and again because we stopped our treatment before the bacteria disappeared. It is not difficult to get rid of the pus-cells, but the colon bacillus will remain there in pure culture for a much longer time.

DR. MARTIN KROTOSZYNER, San Francisco: I am glad to hear that Dr. Geraghty has used strong solutions of silver nitrate, because I have always held that weak solutions of 1:10,000 never have any beneficial effect. I have never gone as high as 5 per cent., but, as a rule, I start with 1:500 and go up to 1 per cent., and I admit that my assistants would look at me askance when I carried my injections up to 1:200 and even 1 per cent., but I am glad to see that at Johns Hopkins they do not stop until they reach 5 per cent. At what intervals does Dr. Geraghty use these injections? I want to take exception to one more statement. With Dr. Geraghty I believe in the teaching of Casper that the differential diagnosis of pyelitis and pyelonephritis can be made on the basis of the functional kidney tests. I have seen lately a case in which I was mistaken. I exposed the kidney in a case in which I had made the diagnosis of pyelonephritis from a very low kidney function on the affected side. When I opened the kidney I found it perfectly normal, with simply a dilated pelvis, showing the presence of a pyelitis. I will admit the kidney was interfered with in function by adhesions around the ureter, but the pathologic report on the pieces that were excised confirmed the preoperative diagnosis of pyelonephritis.

DR. LOUIS E. SCHMIDT, Chicago: I disagree, to a certain extent, with Dr. Geraghty. He makes rather a clinical diagnosis, and of course when we talk about cures we also depend on the clinical results. It would really be interesting to be able to demonstrate kidneys of this kind after death really to see what the exact changes have been, that is, if the patient has really passed through a distinct pyelitis. I do not believe that a pure and simple pyelitis exists. I have always been under the impression that there is at least a very mild degree of pyelonephritis present; hence that all this local treatment is, at least in the vast majority of instances, not followed by the best results. Of course, Dr. Geraghty divides his cases and states positively that there is one type, exceptionally common, which responds to this mode of treatment. I do not believe pyelography is necessary for the diagnosis of pyelitis. I object to the general use of this method of examination. I do not see what distinct information we can get, except possibly slight changes in the papillae, etc., but I do not believe a diagnosis can be made from that. If we do a ureteral catheterization and find that we have a slight enlargement of the pelvis, I think that will give us a certain amount of information, and naturally the ordinary urinary examinations that go with it are useful; but in cases of this kind I do not think that pyelography is absolutely essential in the diagnosis. As it is a question of formulating the exact conditions of when we should do pyelography, I would be glad to hear what Dr. Geraghty has to say about this method of examination in differentiating these conditions. When it comes to the diagnosis of pyelitis, I lean more on the clinical course than on a lot of these so-called more exact methods. When we come to the treatment a good many depend on internal medication. Of course, there are objections to that, but I am still skeptical as to lavage. I have gone through that for a good many years. It is true that I have not treated all cases indiscriminately, but I have still to see any practical results from lavage of the pelvis of the kidney.

Dr. W. E. Stevens, San Francisco: Does Dr. Geraghty use vaccines in the treatment of any of these forms of pyelitis?

Dr. John T. Geraghty, Baltimore: A pyelitis cannot be considered cured until repeated examinations have shown the urine to be free from infection and bacteriologically sterile. In our series of cases we have only considered as cured those in whom this result was obtained. Pyelography has proved of considerable value in differentiating those with marked changes in the pelvic wall from the type in which these changes have not occurred, and the knowledge obtained in this way has been useful from the point of view of prognosis. I can see no objection to using pyelography in these cases, particularly when it is done carefully and the gravity method alone is employed. Since employing the gravity method of injecting the pelvis, we have had no ill results. We used vaccines some years ago quite extensively in the treatment of pelvic infections, but were never able to see any specific benefit which could be ascribed to the vaccines alone. At present we employ them but seldom.

THE RELATION OF UREA TO THE TOTAL NITROGEN OF THE BLOOD IN HEPATIC DISEASE *

CLIFFORD B. FARR, M.D.
AND
EDWARD B. KRUMBHAAR, M.D.
PHILADELPHIA

The object of this investigation was to test by the new and dependable method of Folin the assertion of various French investigators that in cirrhosis and other diseases of the liver the percentage of urea in the blood is diminished.

Folin's method had given one[1] of us excellent results in the study of the blood of nephritis, and although we were skeptical about obtaining definite evidence of changes in the blood in hepatic disease, the accuracy of Folin's method seemed to offer the best means of reaching a conclusion. Our scepticism may be explained as due in part to our belief that even in so extensive a disease of the liver as cirrhosis, enough normal liver parenchyma remains—the so-called "factor of safety"—to carry on the normal function, and also to the well-known fact that in all diseases of the liver of the cirrhotic type, regenerative proliferation of hepatic parenchyma is more or less constantly present. With the wide margin of safety offered by these two factors it appeared highly improbable that a noteworthy diminution in urea formation would be found.

UREA AND TOTAL NITROGEN OF BLOOD IN HEPATIC DISEASE

Diagnosis	Total Nitrogen mg.	Urea mg.	Remarks
I. CIRRHOSIS			
1. Portal cirrhosis	25.5	12.4	
2. Portal cirrhosis	34.2	17.7	
3. Portal cirrhosis; splenomegaly	28.9	14.4	Occasionally albumin and casts
4. Portal cirrhosis	33.8	16.8	
5. Portal cirrhosis	23.5	12.7	
6. Portal cirrhosis	22.2	12.7	
7. Portal cirrhosis	40.9	20.0	Nephritis
8. Hypertrophic cirrhosis*.	30.3	15.3	Albumin and casts
9. Hypertrophic cirrhosis..	45.9	24.1	Nephritis
II. CANCER AND JAUNDICE			
10. (1) Carcinoma of liver (2) Carcinoma of liver†	69.5 35.0	30.0 13.4	Occasionally albumin
11. Carcinoma of liver, jaundice	72.7	high‡	Albumin and casts
12. Catarrhal jaundice	35.2	14.3	
III. CHRONIC PASSIVE CONGESTION OF LIVER			
13. Passive congestion; myocarditis	24.7	12.2	Occasionally albumin
14. Passive congestion; chronic endocarditis.	31.3	16.6	Albumin and casts
15. Passive congestion; cardiorenal	23.9	11.6	Albumin and casts
16. Passive congestion; chronic endocarditis.	22.7	11.0	
17. Passive congestion; syphilitic aortitis ..	38.2	22.5	Albumin and casts
18. Passive congestion; chronic endocarditis..	51.2	33.9	
IV. CONTROLS			
19. Typhoid fever (suspected cirrhosis)	23.7	11.2	Occasionally albumin
20. Nephritis (?)	24.7	10.4	
21. Tuberculous hip disease	34.1	19.3	
22. Convalescent typhoid ..	23.9	12.2	
23. Normal	30.1	14.8	

* Reported previously by Farr and Austin, Case 56.
† Second test performed two weeks later.
‡ Too high to be read with dilution employed.

The earlier observations based on the older methods of study are as follows: Morel and Mouriquand,[2] using the Pflüger-Braunstein method, found that whereas in nephritis the percentage of urea in the blood varied from 64 to 77 per cent., in hepatic disease it ranged from 33 to 50 per cent.

---

* From the John Herr Musser Department of Research Medicine, University of Pennsylvania.

[1] Farr, C. B., and Austin, J. H.: The Total Non-Protein Nitrogen of the Blood in Nephritis and Allied Conditions, Jour. Exper. Med., 1913, xviii, 228.

[2] Morel, A., and Mouriquand, G.: Urémie et azotémie; considerations sur la signification de la retention des corps azotés dans le sang des cirrhotiques, Bull. et mém. Soc. méd. d. hôp. de Paris, 1913, xxxv, 266.

Courmont, Boulud, Savy and Blanc-Perducet[3] studied the urea percentage in the blood by Boulud's method. Twenty-two cases, mostly nephritics, gave an average of 80 per cent., whereas the one cirrhotic studied gave 42 per cent.

Brodin[4] also found that the urea percentage was decreased in hepatic disease and the "non-ureic" nitrogen correspondingly augmented. Finally, Chauffard[5] called attention to the fact that the estimation of the urea percentage might be inaccurate on account of changes due to diet or an accompanying nephritis, and suggested, as a better criterion, the estimation of the "residual or non-ureic" nitrogen. By this was meant the determination of the difference, in milligrams per hundred c.c., between the urea and the total non-protein nitrogen of the blood.

Our results are shown in the accompanying table, and present the average of duplicate estimations made according to the method of Folin and Denis.[6] The figures indicate in milligrams the respective amounts of urea and total nitrogen per hundred c.c. of blood. The percentage of urea and the difference between total nitrogen and urea (Chauffard) were calculated in each instance, but as these figures did not prove to be of value, we have, for the sake of brevity, omitted them.

SUMMARY

In the various forms of cirrhosis, as presented in the first portion of the table, the total nitrogen was markedly increased only in those accompanied by definite nephritis. The moderate increase seen in rare instances may have been due to slight renal involvement not shown by our clinical tests. The percentage of urea was in each case approximately 50 per cent., which we regard as normal.

The second group of three cases, in each of which severe functional disturbances might have been expected, did in fact show changes suggestive of hepatic insufficiency. The percentage of urea ranged from 38 to 43 and the difference from 21 to 40. Similar results were occasionally found in cases of eclampsia, reported elsewhere,[7] in which impaired liver function was presumably present.

Our third group consisted entirely of cases of chronic passive congestion of the liver secondary to heart disease. In none, according to the criteria mentioned, did we find any suggestion of hepatic insufficiency. The urea percentage ranged from 47 to 66.

In the fourth, or control group, the urea percentage ranged from 42 to 57, essentially normal figures.

In conclusion it may be stated that our observations offer little or no support of the view that in destructive disease or severe functional derangement of the liver the percentage of urea in the blood is reduced. In the group of diseases studied our figures are close to the normal. In cirrhosis of the liver, a disease in which functional tests would be of the greatest value the determination of blood urea offers no information of use in diagnosis.

---

[3] Courmont, Boulud, Savy and Blanc-Perducet: Sur le coefficient azoturique du serum. Bull. et mém Soc. méd. d. hôp. de Paris, 1913, xxxv, 259.

[4] Brodin, P.: Modification de la teneur azotée du serum sanguin au cours de l'insuffisance hepatique, Comp. rend. Soc. de biol., 1913, lxxiv, 26.

[5] Chauffard, A.: A propos des variations de la teneur azotée de serum chez les hepatiques, Bull. et mém. Soc. méd. d. hôp. de Paris, 1913, xxxv, 273.

[6] Folin, O., and Denis, W.: New Methods for the Determination of Total Non-Protein Nitrogen, Urea and Ammonia in Blood, Jour. Biol. Chem., 1912, xi, 527.

[7] Farr, C. B., and Williams, P. F.: Total Non-Protein Nitrogen of Blood in Toxemias of Pregnancy, Am. Jour. Obst., 1914, lxx, 614.

LATENT ATYPICAL MALARIA COMPLICATING THE PUERPERIUM

M. J. SEIFERT, M.D.
CHICAGO

Manaberg claims that pregnancy constitutes no protection against malarial infections, notwithstanding the statements of the older observers to the contrary. In a gravid woman, malarial infection often takes on a severe form. The influences making for anemia in cases of even slight infections are more potent in pregnant women than in others, as abortions frequently occur.

Weatherly reported that in India, 46 per cent. of his cases aborted, while in England the frequency amounts to only 3.56 per cent.

Pellereau reports the same conditions in Mauritius. The abortion does not require a fever nor a paroxysm for its production, the fetus usually being dead before abortion occurs.

Weatherly also finds sterility among women in India of common occurrence, which he attributes to malaria.

According to Chevers the act of parturition often operates as an exciting cause in an outbreak of malaria, during which lochial and lacteal secretions cease. The same was reported by Parker of New York. He had only one death among forty-seven cases. Repeated blood examinations would naturally be very desirable in similar cases, as the possibility of septic infection is very great. Since the parasite of masked malaria is not always found in the peripheral blood, special emphasis is laid on the repetition of blood-tests in obscure cases. The frequency of masked malaria varies inversely with the care and thoroughness employed in diagnosis, and diagnosis must be based on microscopic findings and therapeutic tests, as symptoms *per se* are only confusing.

The case about to be described is one of latent atypical malaria complicating the puerperium in a patient afflicted with chronic nephritis of long standing. This report is of more than passing interest to the general practitioner and especially to the obstetrician for clinical study, as no like case has been found in the literature.

REPORT OF CASE

Mrs. X., aged 25, American, lived in Illinois all her life. When 2 years old she had a severe attack of "summer complaint." Puberty at 12 years was uneventful so far as the establishing of normal menstruation was concerned, but the patient was ill four weeks at that time as the result of a fall on her head while at turning school. At 15 years the patient became anemic, which condition persisted to the age of 18 when she was unable to walk for one month on account of dropsy. During this period she was afflicted with frequent fainting spells.

June 20, 1900, at the age of 20, the patient was married. May 9, 1901, aged 21, she was confined and delivered of a fine healthy boy weighing about 10 pounds. On the sixth day after labor she had chills and fever which at that time I attributed to a probable infection as there was no trained nurse in attendance. There were no manifestations of puerperal sepsis, no pelvic symptoms, no offensive lochia and no stitch infection. The perineal lacerations were bilateral though not extensive; the cervix sustained slight tears on both sides. Unfortunately, no clinical record could be made of this sickness which lasted about three weeks. The treatment was not antimalarial, but tonic and supportive—entirely symptomatic. The patient made an uneventful recovery and, to use her own expression, "enjoyed better health than ever before in all my life." This state of good health lasted until her next pregnancy. Feb. 22, 1905, aged 25, at 4:15 a. m., patient gave birth to a 12-pound boy in St. Mary of Nazareth Hospital, Chicago. There were extensive lacerations of the cervix uteri and of the perineum and more than ordinary hemorrhages. The latter caused three fainting spells. The labor came on so suddenly that I had no time to summon an intern. No vaginal examinations were made as there were no indications of any pathologic conditions, and, besides, there was no time for ascertaining details between the time of her admission, late in the evening of February 21, to the time of the spontaneous labor, 4:15 a. m. February 22. As persistent uterine inertia followed, the placenta was delivered artificially. This caused a fourth fainting spell. The patient was allowed a brief respite, until 8:15 a. m. when I repaired the cervical and perineal lacerations, using only a few whiffs of an anesthetic as she insisted on exercising her will power. A fifth fainting spell occurred in the operating-room after the completion of the suturing. During the night the temperature rose to 100 F. and the pulse to 120, but both were normal the next morning. Every function was normal with the exception of the pulse, which ranged from 90 to 100 and above—in fact the pulse was often above 100. Owing to the nervousness of the patient and the absence of any discoverable disease other than chronic nephritis with its usual comcomitants, no unusual significance was attached to this feature of the case, especially since the pulse was otherwise normal.

February 28 the left breast became indurated and painful and the patient had slight chills and complained of nausea. At 6 a. m. the temperature rose to $102\frac{9}{10}$ F. and the pulse to 104. The breast was massaged and boric-acid fomentations and breast pump were applied. The nipple being fissured, was treated with glycerite of tannic acid. Enemata and sponge baths were given for eliminative and antipyretic purposes. Then there ensued the following play of pulse and temperature:

Date	Time	Pulse	Temperature F.
3/1	4:00 a. m.	120	103
	4:30 p. m.	128	$104\frac{2}{10}$
	8:45 p. m.	90	102
3/2	12:30 a. m.	140	104
	3:30 a. m.	120	103
	5:30 a. m.	120	$100\frac{2}{10}$
	2:00 p. m.	108	$99\frac{9}{10}$
	6:00 p. m.	100	99

Pulse then became normal. There were no symptoms of any pelvic infection, hence puerperal septicemia was excluded. As the breast was the only offending organ that was discovered at that time, I held it accountable for the vagaries of the pulse and temperature and, naturally, when these dropped to normal, simultaneously with the cessation of all untoward breast symptoms, I thought the difficulty was overcome. Urinalysis showed specific gravity 1.032; 4 per cent. albumin by volume; trace of sugar; some hyalin and a few granular casts.

The next day I was made uneasy by the following clinical record:

Date	Time	Pulse	Temperature F.
3/3	3:00 p. m.	124	100
	6:00 p. m.	128	102
	10:15 p. m.	130	104

The record remained about as above until it became more serious, namely:

Date	Time	Pulse	Temperature F.
3/4	3:00 a. m.	128	105
	8:45 a. m.	130	$105\frac{2}{10}$
	11:00 a. m.	120	104

The condition becoming alarming, I requested consultation. After an exhaustive examination consultant assured me that there was not one sign of any pelvic infection, and in his subsequent daily visits found no reason to alter his opinion.

In spite of finding no pathologic lesions of any kind, there was no improvement in the pulse-temperature wave which rose to 140 and $106\frac{8}{10}$ and never dropped below 110 and 101, respectively. There was not even the slightest periodicity in these records. Feeling that we were making no progress and that the patient was losing ground daily, a second consultant was sought. A careful study of the case, course, examinations made and treatment given, revealed the fact that malaria was about the only disease not thought of. While the clinical record did not support any malarial theory, yet a blood examination was advised and ordered and large numbers of the parasites of the tertian variety were found.

Specific antimalarial treatment (quinin bisulphate 2 grains followed by a cup of hot water every two hours) produced good results in twenty-four hours. In forty-eight hours convalescence was established and recovery was gradual and positive. No other untoward symptoms appeared, excepting cinchonism which was overcome by adding sodium bromid, 5 grains to each dose of quinin.

After all symptoms subsided, the patient normal in every respect and ready to be discharged, she complained of slight tenderness in the pelvis. Some lochial discharges appeared March 21, 1905, which, on microscopic examination, were found to contain gonococci. The husband admitted to consultant and to me that he had been afflicted with gonorrhea.

SUMMARY

The patient never lived in a strictly malarial locality. The symptoms were not at all typical of malaria. The patient never had an attack of malaria until after labor. The anemia that occurred between the ages of 15 and 18 might have been the result of malarial intoxication (in latent form). The occurrence of irregular chills and fever in two consecutive confinements and never at any other time, with no pelvic involvement and with positive microscopic findings in the second, merits attention. The late gonorrheal complications after the second puerperium about thirty days after labor and long after other conditions were normal, was an extraordinary experience. Every case of fever following labor is not puerperal sepsis.

Finally the most important part of this paper is the lesson to be learned from a lack of thoroughness in diagnosis. I offer no apology, as there was an acute exacerbation of nephritis engrafted on a chronic nephritis of long standing, together with acute mammitis and the atypical malarial manifestations, to say nothing of the late gonorrheal infection, all of which formed a symptom-complex so confusing and so perplexing that it was indeed not easy nor yet hardly reasonable to expect to decipher such symptoms as would make for a diagnosis of malaria.

I make a strong plea for exhaustive methods of diagnosis as a routine practice, and the lesson I would take to heart if still engaged in an obstetric practice, would be to take nothing for granted and to examine all unusual cases exhaustively, carefully studying clinical data, and especially to go the limit in the laboratory methods of diagnosis.

Yellow Fever Commission.—The reports of the Yellow Fever Commission of West Africa have been issued and the following conclusions are drawn: 1. Yellow fever has occurred from time to time since 1778 in various parts of the British West African colonies. 2. There is no evidence to show that the infection in each outbreak has been introduced from outside Africa. 3. The mild nature of the attack in certain cases makes identification a matter of great difficulty. It is therefore essential that in future all cases of fever should be carefully observed and classified in order that, so far as possible, such mild cases may not pass unrecognized. 4. The attention of all workers at this subject should be specially directed to the discovery of a clinical test for yellow fever.

A METHOD OF DIMINISHING HEMORRHAGE AFTER SUPRAPUBIC PROSTATECTOMY *

EDWARD L. KEYES, JR., M.D.
NEW YORK

Discussion of the amount of bleeding that follows suprapubic prostatectomy is not likely to profit us anything. I have at various times been convinced that a certain method of removing the prostate markedly diminished the hemorrhage, but no sooner was this opinion in the way of becoming a certainty than it was rudely shattered. My personal preference is to enucleate the prostate by the so-called intra-urethral method. To avoid the hemorrhage I have tried packing, and making the incision through the mucous membrane by means of a Bottini instrument introduced into the urethra. This did not much diminish the hemorrhage, and it did have the inconvenience of leaving one of the four or five patients on whom I operated in this way with partial incontinence of urine. I next tried to suture the neck of the bladder in one case; the patient died of hemorrhage. Since then I have employed the following technic in ten cases:

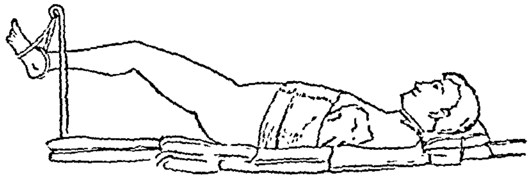


Fig. 1.—Position of patient in author's operation with legs supported on leg-rests and with hips at an angle of about 45 degrees.

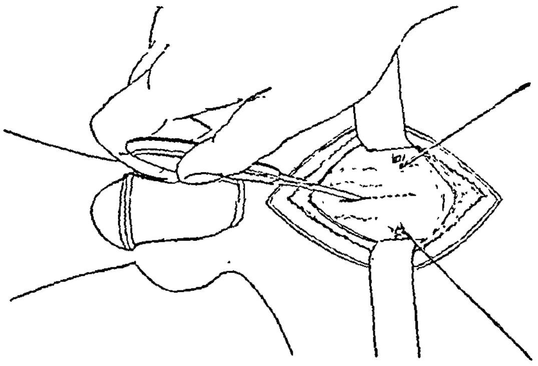


Fig. 2.—The bladder exposed through a suprapubic incision, suspended by two skin hooks; incision between the hooks.

The patient is put on the operating table in the dorsal position but with his legs supported on leg-rests so that the hips are flexed at an angle of about 45 degrees (Fig. 1). The hypogastrium, the genitals, the perineum and the adjoining portions of the thighs are then cleaned in the usual manner, and this wide field is left uncovered by towels.

The bladder is exposed through a suprapubic incision, suspended by two skin hooks, and incised between these (Fig. 2). The prostate is then rapidly enucleated between two fingers in the rectum and two in the bladder. Then a grooved staff is inserted into the urethra and a long Peaslee or Reverdin needle, threaded with a piece of catgut about 18 inches long, is plunged into the groove of the staff through the perineum (Fig. 3) quite in the same way as one uses a bistoury in doing a rapid perineal section.

The needle is passed along the grooved staff until it can be felt in the bladder by a finger in the suprapubic opening. The staff is then withdrawn and two Walker suprapubic bladder retractors[1] are introduced. These, by making lateral traction on the bladder, elevate the torn edges of the bladder neck like a veil and make it plainly palpable to the examining finger.

The needle, carrying the catgut, is inserted through the edge of this veil, just deep enough to get a good hold, at a lateral angle (about 7 o'clock) (Fig. 4). Then by depressing the handle of the needle its eye is brought up into the suprapubic wound so that the catgut can be disengaged (Fig. 5). This accomplished, the needle is withdrawn from the puncture in the bladder neck and reintroduced at a corresponding point on the opposite side, again threaded with the catgut, allowing plenty of slack (Fig. 6), then rapidly withdrawn through the perineum. The threading and unthreading of the needle is expedited by removing the corresponding Walker retractors immediately after the puncture of the bladder neck on each side. If an indwelling catheter is to be employed, it must be inserted now.

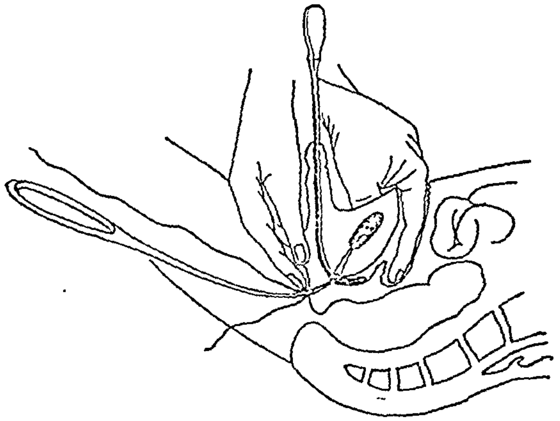


Fig. 3.—Peaslee or Reverdin needle threaded with catgut inserted through perineum along grooved staff.

After the needle has been withdrawn we have in our hands the two ends of a suture entering through a single puncture in the perineum, passing through the deep urethra and to the bladder neck and catching the lower segment of this at its two angles (Fig. 7). Traction on the ends of the loop pulls the bladder neck down

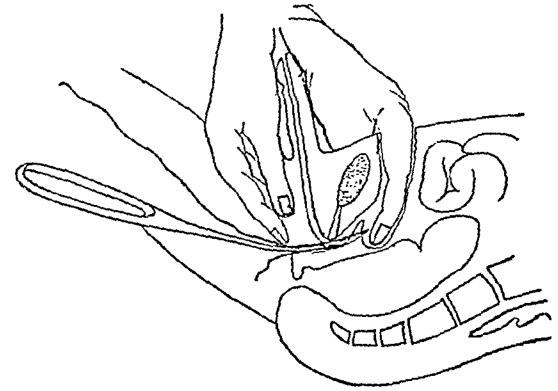


Fig. 4.—Showing method of inserting needle through the torn edges of the bladder neck, made tense by retractors.

---

* Read before the Section on Genito-Urinary Diseases at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

[1] After becoming accustomed to the technic of the operation one may dispense with this retraction.

into the urethra. It thus controls hemorrhage, chiefly, I fancy, by putting the bladder neck on tension. The ends of the suture are then tied about a short rubber tube laid against the perineum, after the bladder neck has been pulled down very firmly (Fig. 8).

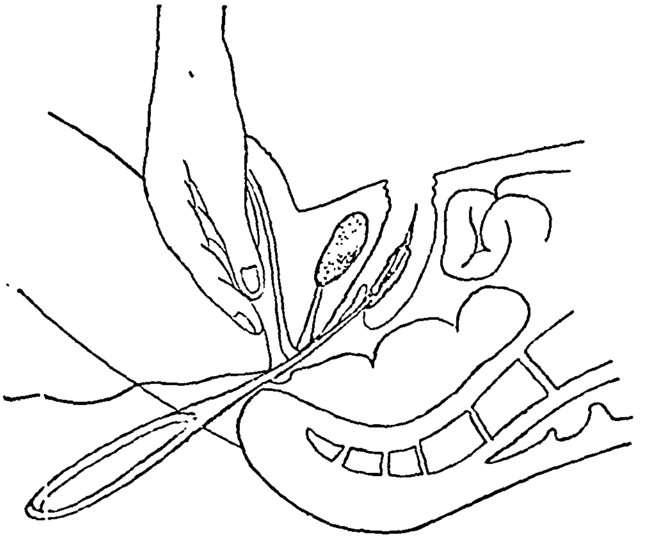


Fig. 5.—The eye of a needle is brought up into the suprapubic wound by depressing the handle so that the catgut can be disengaged. The needle is then withdrawn.

Drainage is provided by the usual suprapubic tube or by a catheter in the urethra, and a tube in the suprapubic wound, according to the fancy of the operator. I am using a rather small suprapubic tube in these cases, but do not care to do away with it altogether with the memory fresh in my mind of the gentleman who so recently advocated complete suture of the bladder after suprapubic prostectomy and is reported to have returned home only to find that the heralded improvement had been discarded during his absence. The suture is divided and withdrawn from eighteen to twenty-four hours later. With this technic the immediate hemorrhage has been promptly checked, and the ultimate bleeding has been much less than it would otherwise have been. I have not seen any fistula or inflammatory complications along the track of the suture in the perineum.

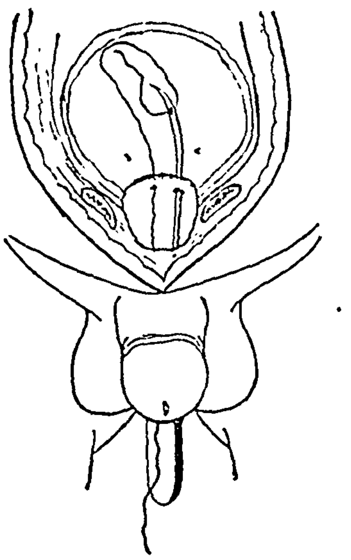


Fig. 6.—The needle reintroduced at corresponding point on the opposite side, again threaded with catgut and then withdrawn through the perineum.

109 East Thirty-Fourth Street.

ABSTRACT OF DISCUSSION

Dr. Francis R. Hagner, Washington: A little bag that I have devised does practically the same thing as Dr. Keyes' ingenious process. This bag has a string attached to one end, at the other a hollow rubber tube. A long curved sound is passed through the urethra, the tip of the rubber tube is pulled over the end of the sound, and the sound withdrawn, bringing with it the tube. The bag is now lying against the neck of the bladder, with a tube coming out through the urethra and a string through the suprapubic opening. The bag is inflated with a large syringe. The finger should be passed around the bag to see that the torn mucous membrane falls back into the cavity from which the prostate was removed. The bag is allowed to remain for from twenty-four to forty-eight hours, but is deflated at the end of twelve hours. To make the bag collapse perfectly it is necessary to use suction with the syringe. To remove it, the tube is cleansed as thoroughly as possible with soap and water and mercuric chlorid, and traction is made on the string while the tube is fed into the urethra. We have used this bag in eleven cases. There is practically no bleeding. If you wash out the bladder there will be just the slightest staining of the fluid. In one case the bag was not big enough. The first bag I had made was 11½ cm. in circumference. It will probably be necessary to have larger sizes, say, 13½ and 15½ cm. In the case in which bleeding occurred the internal sphincter did not contract down as it should. I remarked on it at the time. It is a very simple device. The patient is not uncomfortable; and the bag is removed without pain.

Dr. Charles E. Barnett, Fort Wayne: If the drainage were taken out within from twelve to twenty-four hours, there would be no danger; but if the drainage is kept *in situ* for a longer period than that it appears to me that there would be more danger from the means used to control hemorrhage than there would be had we not used any method of control, for should the drainage tube from its trauma loosen up a clot that had formed in the mouth of a vein there would be great danger from thrombi and emboli. The majority of men who are operating to-day pay no attention, particularly, to hemorrhage, unless the case is hemophiliac. The hemorrhage controls itself.

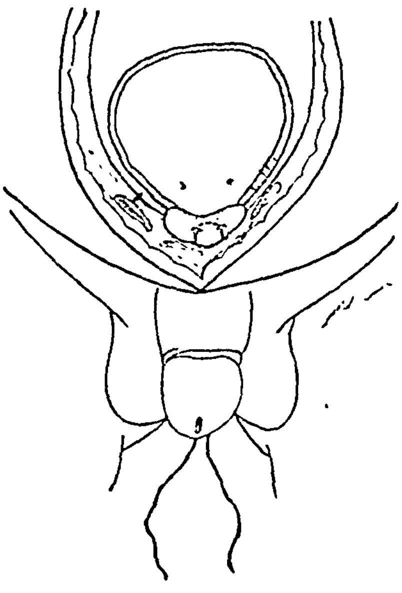


Fig. 7.—Showing the two ends of the suture entering through a single puncture of the perineum, passing through the deep urethra and to the bladder neck and catching the lower segment of the latter at its two angles. The traction on the ends of the loop pulls the bladder down into the urethra.

Dr. E. L. Keyes, Jr., New York: I respect Dr. Barnett's opinion, which is, however, contrary to my own. I consider that hemorrhage is dangerous in many cases; in certain cases, however, it is not dangerous. If we are to employ any technic for the control of hemorrhage, it is better for the sake of our own expertness and rapidity of action that we employ that technic in all cases. Neither in delay at the time of operation nor in complications have I felt that the technic I employ adds anything to the patient's danger.

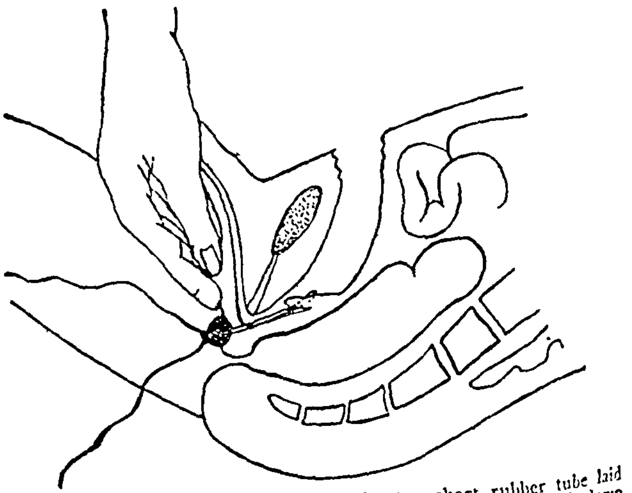


Fig. 8.—The ends of the suture tied about a short rubber tube laid against the perineum after the bladder neck has been pulled down firmly as shown in Figure 7.

THE TREATMENT OF HYDROCELE

WITH SPECIAL REFERENCE TO PHENOL INJECTIONS *

ROBERT H. HERBST, M.D.
Instructor in Genito-Urinary Surgery, Rush Medical College
CHICAGO

Although a serous effusion into the sac of the tunica vaginalis occurs as an independent malady, in the vast majority of cases we find an underlying pathologic condition of one or more of the anatomic structures found in the scrotum. Hydrocele frequently accompanies the acute infections of the epididymis and testicle, but is more commonly found complicating the chronic infections of these organs, such as tuberculosis and syphilis. As a rule when the hydrocele is secondary to a tuberculosis of the epididymis, the tuberculous process is far advanced, having traveled down the cord, involving both the prostate and vesicles. In such cases it is my belief that an open operation is contra-indicated. Again, in those cases due to syphilis of the testicle, the removal or stitching of the sac behind the testicle is entirely unnecessary.

When the sac of the tunica vaginalis is well filled with fluid, it is often very difficult to palpate the contents of the scrotum. Therefore if we consider the conditions underlying hydrocele, namely, acute infections of the epididymis, such as gonococcus and pus infection (rarely colon), tuberculosis, neoplasms of both testicle and epididymis, syphilis of the testicle, also hydrocele resulting from traumatism of these organs, it is obvious that a preliminary tapping and evacuation of the sac is always indicated before choosing between the open operation and the injection of phenol (carbolic acid).

If preliminary tapping is practiced, it will prevent the too common error of opening the sac and finding an advanced tuberculous process behind the fluid. The same holds true in cases of syphilis of the testicle, in which, in all probability, there would be recovery with antisyphilitic treatment.

If I may be allowed to eliminate those effusions into the sac of the tunica vaginalis which accompany the acute infections of the epididymis and which usually disappear as the acute process subsides, it is my contention that the results following tapping and injection of phenol are as good as are seen following any of the open operations, provided the sac be thoroughly washed with sterile water after the serum has been evacuated and before the phenol is injected.

The common recurrences following the old method of injecting phenol without the preliminary washing out of the sac were due to the fact that the sac wall was covered with serum, which coagulated the phenol and did not allow the acid to come into contact with the sac wall. To obviate further such a contingency it has been my practice to test the return fluid for albumin and to continue the washing of the sac until the fluid fails to give a reaction to nitric acid. Then from 10 to 12 c.c. of 95 per cent. phenol are injected, the scrotum at the same time being manipulated so as to bring the acid into contact with all parts of the sac; then the excess is allowed to flow out, after which about 15 c.c. of alcohol are injected.

The injection of sterile water into the sac serves the double purpose of cleansing the sac wall and prevents the not infrequent accident of injecting the phenol into the tissues of the scrotum. During the emptying of a well-filled tunica vaginalis the receding sac wall is likely to draw away from the end of the cannula without the knowledge of the operator. If this does occur and the water is injected, it does not return, but remains in the tissues of the scrotum, which appear edematous. Under such circumstances the sac must be allowed again to fill with serum before an attempt is made to inject the phenol. The use of the Belfield hydrocele trochar and cannula, however, will practically always prevent this accident because it fixes the sac, by passing through two of its walls. The refilling of the sac which is commonly seen during the first twenty-four hours after the injection is due to the reaction of the tissue to the phenol and disappears spontaneously within a few days.

For the number of years that I have been practicing this method of washing the sac before injection I have observed very few recurrences. These few were in most instances due to a slight reaccumulation of serum, during the first week or two after the injection, and after a simple evacuation the cure was permanent.

In cases of chronic pachyvaginalitis in which the sac wall has become greatly thickened, excision is preferable to either eversion or injection. As is sometimes supposed, injection of phenol is not followed by atrophy of the testicle, although it may rarely produce a peritesticular sclerosis.

As for the objections that might be advanced relative to the toxic effect of the phenol, I would say that neither in my own experience nor in the literature have such results obtained.

CONCLUSIONS

1. Considering the underlying pathology of many cases of hydrocele, it is my belief that open operation for the relief of this condition is usually unnecessary and frequently contra-indicated.

2. When the sac is thoroughly washed with sterile water before the phenol is injected, recurrences are very rare.

32 North State Street.

ABSTRACT OF DISCUSSION

Dr. A. A. Martin, New Zealand: Will Dr. Herbst say whether there is any pain after using this method?

Dr. V. D. Lespinasse, Chicago: I have often used phenol (carbolic acid). One of my early experiences was in a case of sloughing of the scrotum from carbolic acid, due to improper technic. That gave the method a sort of black eye in my own opinion. Later on I used the device of Dr. B. Einasson and somewhat simultaneously Dr. Belfield brought out his cannula. Since then I have used that with good results. Lately, instead of using phenol, after making the puncture and as the fluid is running out, I thread some chromic catgut into the sac. The catgut technic causes a little more pain the next day, but there is no chance of sloughing occurring.

Dr. B. A. Thomas, Philadelphia: It has been my experience that the injection of phenol is a useful procedure, in a large number of cases. I have noticed, however, that in not a few there has been a good deal of effusion as a result of the chemical reaction provoked in the tunica vaginalis, and in order to hasten convalescence I have resorted to secondary paracentesis. Has Dr. Herbst found it necessary to practice that supplementary procedure in the postoperative treatment of his cases?

Dr. Frank Hinman, Baltimore: Has Dr. Herbst made any comparative studies with the use of phenol and the

---

* Read before the Section on Genito-Urinary Diseases at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

formaldehyd solution or catgut methods? A number who have used equal parts of formaldehyd, glycerin and alcohol report better results than with phenol. We have treated a few patients at Johns Hopkins with formaldehyd and with the pushing in of catgut, and there has been, in all cases, a marked inflammatory reaction afterward. We have not used phenol.

Dr. Robert H. Herbst, Chicago: Practically no pain follows the injection of phenol.

Concerning Dr. Lespinasse's trouble, I do not want to criticize his technic, but I imagine that he must have injected the acid into the dartos and not into the tunica vaginalis. I do not believe that sloughing could occur if the acid were injected into the tunica vaginalis.

Dr. Lespinasse: It was not my technic. The case was in the hospital when I went on duty.

Dr. Herbst: I happened to have had this accident occur in my own work due to the slipping of the sac from the end of the cannula. If one injects the acid into the tissues outside of the tunica vaginalis one is likely to cause a sloughing of the scrotum. Answering Dr. Thomas, a short extract from my paper reads: "These few were in most instances due to a slight reaccumulation of serum during the first week or two after injection, and after a simple evacuation the cure was permanent." I have not had any experience with the injection of formaldehyd solution.

SONOROUS VIBRATIONS IN THE TREATMENT OF EAR-DISEASES*

LESTER MEAD HUBBY, M.D.
NEW YORK

The treatment of ear-diseases with sonorous vibrations rests on the following principles:

The application of sonorous vibrations not too long continued and not too intense has a stimulating effect on the metabolism of all living cells. This action is a pneumovibratory massage. Applied to the ear it affects the external auditory canal directly, the tympanum through the membrana tympani, and the internal ear and cochlear nerve-system through the ossicles, oval window and, to a much less degree, through the tympanum and the round window.

All the structures of the auditory apparatus degenerate when insufficiently exercised; hence the necessity of intensive exercises when any of them are crippled.

Sonorous vibrations exercise the membrana tympani, the tympanic ossicles and muscles, the hair-cells of Corti's organ and membrana tectoria, and the entire cochlear nerve-system. Such exercise not carried to the point of fatigue increases the nutrition and efficiency of these structures.

The parts of the auditory apparatus or system, like those of other systems or organs of the body, are closely connected by the sympathetic. Metabolic changes in one part produce similar changes in allied parts. Thus, acute circulatory changes in the tympanic mucosa produce similar changes in that of the eustachian tube, and vice versa. This probably explains the improvement in the eustachian tube after treatment directed at the tympanum.

The Zünd-Burguet electrophone, which has been described in a previous paper,[1] was used in all the treatments and experiments enumerated herein. With this instrument siren-like scales may be produced in three timbers, corresponding to three registers of the human voice, low, medium and high. These registers may be lowered or raised, but they should be adjusted so that the scale of each overlaps that of the adjacent register. Each register has a scale of over an octave, and the sum of all the registers is a little less than five octaves, which is about the conversational range. If the harmonics and overtones produced are also considered, possibly the eleven octaves of human auditory perception are reached in the exercises. The latter consist in the production of scales in each of the registers, either applied to one ear at a time, or first to one ear and then to the other in each register, or as is usually done, alternately, first to one and then to the other ear while playing each scale in each register. Zünd-Burguet produces two scales, once in the low and once in the high register, and three times in the middle register at each treatment. Thus he starts in the middle register, proceeds to the low, then back to the middle, then up to the high and finally back to the middle register.

I complete the treatment by a short mechanical massage near and over the ear to overcome any slight numbness induced by the sonorous vibrations.

The intensity of the vibrations to each ear can be regulated, and also changed gradually or suddenly during the scales on each ear seriatim.

By this method, each note is produced for only a small fraction of a second (less than one-eighth of a second in the usual three-minute treatment), and each note is sounded at least twice for each ear.

The regulation of the intensities of the sounds used is exceedingly important. Zünd-Burguet as a general rule uses waves of not quite sufficient amplitude to cause a prickling sensation in the ear. There are many cases, however, in which no prickling sensation can be produced by the instrument used and yet the intensities of the sounds are sufficient to cause tinnitus and decreased audition. Therefore each case must be carefully studied and the intensities of the sounds graded to bring about the maximum improvement. To accomplish this in these cases, it is necessary to make tests before and after treatment for several days until the correct dosage is determined.

This brings up the subject of examinations.

The method pursued in chronic cases is to examine the ears at the start, and after fifteen, thirty, and fifty treatments.

In acute and subacute conditions, single tests may be necessary before and after treatment each time.

Thus the course and the frequency of treatments must be determined for each case, not always in advance.

Acute and subacute conditions require treatments once a day, while the chronic usually need two a day.

Good physical condition seems necessary for the most rapid improvement, especially when two treatments a day are given.

Negative results are liable to follow when the patient is in a continual state of exhaustion. This is one of the difficulties of the two treatments a day course. The pursuit of a vocation and the expenditure of the necessary energy for visits to the office twice a day sometimes prevent a successful outcome.

The usual course of treatment comprises fifty seances, two treatments a day. A second course of from twenty to thirty treatments is necessary in from six months to a year in the majority of cases of chronic deafness.

---

* Read before the Section on Laryngology, Otology and Rhinology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

[1] Hubby, L. M.: Treatment of Deafness with Sonorous Vibrations by the Zünd-Burguet Method, New York Med. Rec., Jan. 31, 1914.

Some experiments were tried on the fairly normal ear to show the immediate effects of the treatment on audition.

A single distance test with a watch, an acoumeter, or similar instrument was made just before and immediately after a treatment on six individuals with the following results:

Case 12.—Three cork acoumeter tests for each ear. The percentage of increase of audition distance varied from 1 to 45 per cent. The average was 21⅓ per cent.

Case 43.—Three cork acoumeter tests for each ear. Increase of audition distance 3 to 49 per cent. Average increase 20.5 per cent.

Case 28.—One watch experiment with one ear. Increase of audition distance 18 per cent.

Case 39.—Six cord acoumeter experiments with one ear. Increase of audition distance from 3 to 43 per cent. Average increase 13⅓ per cent.

Case 11.—Two acoumeter experiments for each ear. Increase of audition distance from 9 to 17 per cent. Average increase 14 per cent.

Case 13.—One cork acoumeter experiment with each ear. Increase of audition distance 13 and 9 per cent. Average increase 11 per cent.

The average increase for the twenty-six experiments was 16.33 per cent.

A few observations were made to determine the length of time that a normal ear retained its improved audition after one treatment and it was found to be a little over a day.

Some tests were made on abnormal ears to find the immediate effects on hearing distance.

Case 25.—A patient aged 60, suffering from otosclerosis with nerve atrophy. Right ear was tested three days with acoumeter, the left with cricket. Increase of audition distance from 4 to 47 per cent. Average increase 18⅓ per cent.

Case 4.—Patient aged 33, with otosclerosis, OMCC residual, nerve atrophy. One experiment with cricket with each ear. Increase of audition distance, right ear 61 per cent., left ear 46 per cent. Average 53.5 per cent.

Case 7.—Patient, aged 47, with otosclerosis and nerve atrophy. Cricket experiments on two days with both ears. Increase of audition distance from 3 to 22 per cent. Average 14.75 per cent.

The average increase for these three chronic cases was 28.9 per cent.

Case 39.—OMCA in boy aged 16. Tests made on seven days. On the first day a watch was used, on the other days a cork acoumeter. Increase of audition distance from —3 to 59 per cent. Average 14 per cent.

Case 28.—A man, aged 35, OMCA. Tests made on three days with watch showed increase of audition distance of 62, 60 and 13 per cent., or an average of 45 per cent.

SOME RESULTS IN CHRONIC PURULENT OTITIS

Case 17.—Man, aged 27, OMPC left ear with small perforation in Shrapnell's membrane. Usual antiseptic cleansing methods of no avail after several months' trial. Perforation healed in two days after four treatments.

Case 6.—Woman, aged 25, OMPC of both ears failed to dry after long course of treatment. Both ears dry after four days, eight treatments. She also had severe eczema of both canals which practically cleared up in two days.

Case 24.—Man, aged 22, OMPC (R). Ear dry after three days.

Case 8.—Boy, aged 5, OMPC (B), treated for over a year without success; both ears dry in five days' treatment, but the discharge returned with the next cold.

Case 15.—Woman, aged 30, OMPC (L), dry after three treatments.

Case 18.—Man, aged 22, OMPC and localized perilabyrinthitis in right ear. Dry after fifteen treatments.

Case 21.—Man, aged 54, OMPC (B) with almost entire destruction of the drum and ossicles, and exposure of the internal carotid on the left side. Discharge reduced to a few drops in a few treatments, but the ears did not become dry after forty-nine treatments.

Case 16.—Girl, aged 11, with radical mastoid wound following cholesteatoma, not healing in one spot after two months' treatment, became dry after fifty treatments.

Scanty dry ceruminous secretion causing itching of the external auditory canal was alleviated in at least one case of my series.

One bad case of eczema, associated with a moderate purulent discharge, was quickly relieved by the treatment.

Congestive, stenotic conditions of the eustachian tube were relieved in every instance in which the treatment was tried.

Case 1.—Woman, aged 66. Four pounds' pressure required to open right tube, and 14 pounds for left tube, before treatment. After fifteen treatments, less than 3 pounds' pressure required. (Three pounds pressure is the lowest pressure registered with my apparatus.)

Case 9.—Girl, aged 18. Left tube required 14 pounds' pressure to become patent, before treatment. After eighteen treatments the patency pressure needed was less than 3 pounds.

Case 19.—Man, aged 23. Left tube required 10 pounds' pressure to become patent, before treatment. After fourteen treatments the patency pressure needed was less than 3 pounds.

Case 33.—Woman, aged 25. Right tube required 15 pounds', left tube, 10 pounds' pressure to become patent, before treatment. After thirty treatments (no second test was made prior to this) the patency pressure needed was less than 3 pounds.

Case 37.—Girl, aged 19. Both tubes required more than 15 pounds' pressure to make them open, before treatment. After fifteen treatments the patency pressure required was less than 3 pounds.

Case 3.—Woman, aged 32. Right tube required 10 pounds' pressure to become patent before treatment. After fifteen treatments, less than 3 pounds was required.

Case 18.—Man, aged 22. Left tube required more than 15 pounds' pressure to make it patent before treatment. After thirty treatments 9 pounds' pressure was required, and after fifty treatments less than 3 pounds' pressure was required.

Case 17.—Man, aged 27. Left tube required more than 15 pounds to make it open before treatment; after fifteen treatments still not less than 15 pounds, but after thirty treatments less than 3 pounds were required.

Thus in the eight cases, four were relieved within fifteen treatments, one in eighteen, two in thirty, and one in fifty treatments.

TWO CASES OF ACUTE CATARRHAL OTITIS

Case 39.—Boy, aged 16. Severe OMCA (B). The first few days inflations were beneficial for the right ear, but there was decreased audition in the left. Sonorous vibrations improved the hearing rapidly. Hearing was normal in one week on both sides.

Case 28.—Man, aged 35. Severe OMCA (R). Audition was decreased by the mildest inflation, but attack was overcome by daily treatment with the sonorous vibrations for four days.

In the table are shown the audition tests at the first examination and the morning following the last treatment with sonorous vibrations in thirty-two consecutive cases of chronic deafness.

AUDITION TESTS AT FIRST EXAMINATION AND MORNING FOLLOWING

Lesions	Number of Case	Treatments Given	Ear Treated	Voice		Loud Whisper		Watch		Acoumeter	
				Before	After	Before	After	Before	After	Before	After
OMCC	17	49	R	L 15+	L 15+	15+	15+	S .89	S .72	11.88	11.85
OMPC			L	L 15+	L 15+	7.42	15+	S .06	S .12	.19	.62
OMCC	15	50	R	L 15+	L 15+	15+	15+	S .72	S .83	8.05	15+
OMPC			L	L 15+	L 11	8.52	15+	S .17	S .50	.57	6.55
OMPC, Otosclerosis	21	49	R	L 15+	L 15+	8.12	15+	S .005	S .175	.60	.35
OMPC, Otosclerosis		“	L	L 15+	L 15+	6.66	10	L .64 S .0025	L .85 S .06	.305	.58
OMPC	24	49	R	L 15+	L 15+	15+	15+	L .215 S .13	L .37 S 1.32	.54	6.10
Otosclerosis			L	L 15+	L 15+	15+	15+	S .18	S 1.04	1.82	5.50
OMPC, eczema	6	51	R	L 15	L 15+	3	15+	S .07	S .52	.44	3.33
OMPC, nerve atrophy, eczema			L	L 10.43	L 10.04	.83	.75	M .09 L .02	M .95 L .08	.01	.105
OMPC, localized perilabyrinthitis	18	50	R	L 15+	L 15+	7.98	10	S .005	S 02	.76	.53
OMCC			L	L 15+	L 15+	9.04	14.47	L .21 S .04	L .46 S .09	.26	.30
Otosclerosis	2	15	R	L 7.68	L 10.55	.415	.58	L .15	L .33	......	......
Otosclerosis			L	L 15+	L 15+	15.	15+	S .33	S .21	......	......
Otosclerosis	23	50	R	L 15+	L 15+	10.3	12.04	S .105	S .13	.20	.235
Otosclerosis			L	L 10	L 11.115	1.72	1.59	L .31 S + C	L .57 S .005	.01	.032
Otosclerosis	32	50	R	L 15+	L 15+	15+	15+	L .01 S .12	L .04 S .125	1.18	2.04
Otosclerosis			L	L 15+	L 15+	15+	15+	L .92 S .145	L .78 S .17	5.09	4.95
Otosclerosis, OMCC (residual) nerve atrophy	4	48	R	L 5.97	L 15+	.155	1.51	L 1.92 L — C	L 2.20	—	......
Otosclerosis, OMCC (residual) nerve atrophy			L	L .175	L .69	—	.215	L — C	....	—	......
Otosclerosis, nerve atrophy‡	10	49	R	L 14.9	L 15+	1.07	8.65	M .01?		.016	.10
Otosclerosis, nerve atrophy‡			L	L 15+	L 15+	.77	2.22	L + C L .01	L .06 L + C	.03	.015
Otosclerosis, nerve atrophy§	1	30	R	L 3.97	L 7.16	.23	.65	M + C		.01	.044
Otosclerosis, nerve atrophy§			L	L .88	L 4.41	.15	.40	L .005 L + C	....	—	—
Otosclerosis, nerve atrophy	40	15	R	C 4.64	C 6.45	4.90	7.36		S + C	.97	.10
Otosclerosis, nerve atrophy			L	C 4.24	C 6.88	2.23	7.21	L .105 L + C	L .14 L + C	.01	.03
Otosclerosis, nerve atrophy	33	48	R	C 7.95	C 6.42	5.09	11.75	S .005	S .045	.035	.095
Otosclerosis, nerve atrophy			L	C .32	C 2.58	3.73	7.21	L .05	L .155 S + C	.03	.105
Otosclerosis, nerve atrophy; heredit. syphilis	37	49	R	C .93	C 1.32	4.29	11.63	L + C S + C	L .12 S .05	.30	.38
Otosclerosis, nerve atrophy; heredit. syphilis			L	C 2.15	C 1.94	8.23	11.77	L .115 S .005	L .60 S .055	.43	.38
Otosclerosis, nerve atrophy	25	17	R	L 15+	L 15+	15+	15+	L .295 S .32	L .385 S .38	.98	1.41
Otosclerosis, nerve atrophy			L	L 15+	L 15+	9	11.75	L — C	L — C	......	.04
Otosclerosis, nerve atrophy¶	29	30	R	C 5.97	C 7.27	12.25	15+	S .095	S .009	.19	.21
Otosclerosis, nerve atrophy			L	C 2.45	C 3.95	1.90	8.03	L .03 S + C	L .05 S + C	.03	.08
Otosclerosis, nerve atrophy	3	49	R	L 15+	L 15+	1.86	7.78	L .01 S .04	L .017 S .09	......	......
Otosclerosis, nerve atrophy			L	L 15+	L 15+	15+	15+	S .49	S .58	......	......
Otosclerosis, nerve atrophy	14	48	R	L 3.68	L 15+	.005	.50	L — C	....	—	......
Otosclerosis, nerve atrophy			L	L 2.29	L 15+	.005	.50	L — C	....	—	......
Otosclerosis, nerve atrophy‖	35	42	R	C 1.30	C 2.11	3.61	9.50	S + C	S .02	.37	.62
Otosclerosis, nerve atrophy			L	C 1.53	C .92	2.40	8.64	L .235 S + C	L .33 S .005	.087	......
Otosclerosis, nerve atrophy	41	30	R	C .47	C 1.20	2.95	6.70	L .17 S + C	L .18 S + C	.05	.07
Otosclerosis, nerve atrophy			L	C .67	C 1.12	1.38	4.24	L .115 L .08	L .145 L .135	.035	.035
Otosclerosis, nerve atrophy	38	30	R	C .92	C 2.41	8.10	13.91	S + C	S .015	.035	.09
Otosclerosis, nerve atrophy			L	C 1.12	C 2.89	11.83	13.53	L .045 S .025	L .045 S .05?	.19	.19
Otosclerosis, nerve atrophy	36	31	R	L 10	L 15+	15+	15+	L .545 S .087	L .86 S .135	.68	.64
Otosclerosis, nerve atrophy			L	C .70	C 1.59	7.03	11.82	S .047	S .035	.175	.195
Otosclerosis, nerve atrophy	7	50	R	L 6.67	L 15+	.265	1.97	L .265 L — C	L .285	—	......
Otosclerosis, nerve atrophy			L	L 6.36	L 15	.21	.88	L + C	....	—	......
Nerve atrophy	9	50	R	L 15+	L 15+	15+	15+	S .16 M 1.16	S 1.75 M 2.25	......	......
Nerve atrophy			L	L 15+	L 15+	15+	15+	S .118 M .74	S 1.56 M 2.21	......	......
Nerve atrophy	26	50	R	L 15+	L 15+	8.42	10	S + C L .05	S + C L .14	.085	1.11
Nerve atrophy			L	L 15+	L 15+	15	15+	S .005 L .05	S + C L .085	.08	.262
Nerve atrophy	19	50	R	L 15+	L 15+	15+	15+	S .005 L .155	S .025 L .14	.21	.205
Nerve atrophy, OMCC			L	L 1.60	L 2.61	6.90	6.02	L — C	L — C	—	—
Nerve atrophy	31	30	R	L 15+	L 15+	15+	15+	S .165	S .47	.56	1.35
Nerve atrophy			L	L 15+	L 15+	15+	15+	S .34	S .68	4.40	9.25
Nerve atrophy**	42	15	R	C 15+	C 15+	15+	15+	S .95	S 1.54	13.46	15+
Nerve atrophy			L	C 15+	C 15+	15+	15+	S .73	S 1.71	12.73	15+
Nerve atrophy; otosclerosis	5	16	R	L 1.7	L 2.83	.27	.495	L .005	L .025	.005	.0175
Nerve atrophy			L	L 10.85	L 12.58	1.52	2.15	S + C		......	......
Nerve atrophy, senile	27	50	R	L 15+	L 15+	15	15+	L .19 S .05	L .243 S .07	.17	.273
Nerve atrophy, “			L	L 15+	L 15+	15+	15+	L .17 S .05	L .425 S .097	.34	.43
Nerve atrophy, senile	30	25	R	L 15+	L 15+	15+	15+	L .24 S .17	L .74 S .165	9.20?	9.40
Nerve atrophy, “			L	L 15+	L 15+	15+	15+	S 1.24	S 1.89	8.56	9.61

In this table L indicates loud, C conversational, M medium, and S soft.
¶ Last fifteen treatments given irregularly on account of general fatigue.

* At first test did not use lower than 26. † Old C_4 fork broke, so
‖ C_4 in second test shorter sounding than in first test.

LAST TREATMENT IN THIRTY-TWO CASES OF CHRONIC DEAFNESS

Cricket		High (Air)		High (Bone)		Low (Air)		Low (Bone)		C (Air) (Seconds)		C (Bone) (Seconds)		C_1 (Air) (Seconds)		C_4 (Bone) (Seconds)		Gellé C.mm. Hg	
Before	After	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After
.....	.....	19,000	......	17,000	......	26	26	26	26	62	79	37	33	27	23	18	14	40?	—
.....	.....	14,000	......	17,000	......	128	128	26	26	40	38	35	38	24	16	14	15	40?	—
.....	.....	17,000	19,000	19,000	......	26	26	26	26	81	95	60	44	16	30	10	12	20	10
.....	.....	16,000	14,750	20,000	......	128	26	26	26	41	67	41.5	47	18	25	12	15	—	10
15+	15+	12,000	12,500	17,500	18,000	256	90	26	26	0	12	32	46	16	16	10	14	—	..
15+	15+	13,500	13,750	20,000	21,000	128	55	26	26	20	22	30	40	20	19	10	12	?	..
.....	.....	15,500?	14,500	15,500	16,500	128	55	26	26	43	64	47	38	15	24	12	19	?	+
.....	.....	13,000	15,750	15,500	16,750	128	55	26	26	45	50	47	45	25	28	20	19	—	+
.....	.....	15,000	......	21,000	......	128	26	26	26	46	40	49	51	20	21	11	18	?	..
11.80	15+	14,000	......	22,000	......	256	256	26	26	0	0	30	30	14	14	9	15	—	..
.....	.....	15,600	......	19,000	......	128	.....	26	..	16	30	50	66	19	20	18	16	?	..
.....	.....	16,000	......	20,000	......	128	.....	26	..	23	28	45	49	18	16	13	15	100?	..
.....	.....	16,000	......	19,000	......	512	.....	..	..	0	..	40	..	10	..	14	..	—	..
.....	.....	15,300	......	19,000	......	128	.....	..	..	45	..	36	..	22	..	14	..	—	..
15+	.....	16,000	16,000	25,000	25,000	128	.....	26	..	0	40	33	33	18	15†	20	20†	—	..
15+	.....	13,500	13,600	23,000	23,000	256	.....	26	..	0	0	33	35	15	14†	18	13†	—	..
.....	.....	14,750	14,950	19,000	......	55	45	26	26	47	48	45	45	15	21	19	9	—	—
.....	.....	16,250	16,250	19,000	......	55	26	26	26	50	43	40	45	20	18	15	8	—	—
2.36	4.70	11,000	......	13,000	......	128	.....	26	..	24	17	53	38	12	12	8	9	?	..
.09	.10	12,250	......	20,000	......	256	.....	26	..	14	17	38	37	7	9	6	7	—	..
15+	15+	13,250	10,950	22,000	......	64	26	26	..	42	57	37	34	17	16	8	8	?	..
15+	15+	13,000	14,500	23,500	......	64	40	26	..	50	45	27	34	16	16	10	8	—	..
15+	15+	12,500	......	19,000	......	128	.....	26	..	0	..	40	..	15	..	9	..	—	..
7.79	8.60	9,000	......	20,000	......	256	.....	26	..	0	..	40	..	10	..	8	..	—	..
15+	15+	10,600	10,800	21,000	......	90	26	26	26	13	25	34	47	9	21	13	15	—	..
15+	15+	10,400	10,800	19,500	......	30	26	26	26	36	45	36	42	10	11	7	12	—	..
15+	15+	9,250	10,000	15,000	17,250	65	55	26	26	22	32	41	49	16	18	15	16	—	—
9.57	15+	7,900	8,900	16,000	17,400	90	55	26	26	18	25	38	43	16	18	13	17	—	—
15+	15+	15,950	16,000	19,000	......	512	120	26	26	0	7	26	52	12	20	9	11	—	—
15+	15+	15,900	16,250	20,000	......	90	57.5	26	26	18	25	30	42	9	19	8	13	—	—
.....	.....	14,000	......	15,500	......	50	.....	50	..	61	60	45	24	20	20	19	18	160	..
.....	.....	8,800	......	15,500	......	50	.....	50	..	36	30	30	25	14	14	13	11	—	..
15+	15+	11,000	14,500	19,500	......	55	45	26	..	37	46	38	49	20	20	7	8	—	—
15+	15+	9,125	12,400	20,500	......	55	55	26	..	19	28	37	41	13	16	7	11	—	—
.....	.....	17,000	......	20,500	......	128	.....	26	..	9	16	26	28	14	16	13	18	—	..
.....	.....	18,000	......	21,000	......	26	.....	26	..	81	70	29	27	20	19	14	14	—	..
.81	.94	2,048	......	21,000	......	256	.....	26	..	0	16	44	47	15	15	10	10	—	—
.82	1.03	2,048	......	19,000	......	256	.....	26	..	0	1	45	28	11	14	10	11	—	—
15+	.....	16,000	16,250	19,600	......	90	70	26	..	20	..	50	40	14	11	17	8	—	..
15+	.....	15,000	15,500	19,000	......	90	70	26	..	0?	10	37	50	15	14	16	9	—	..
15+	15+	13,500	13,500	21,000	......	512	256	26	..	0	6	25	25	12	15	9	13	—	..
15+	15+	9,300	9,300	19,000	......	512	256	26	..	0	0	21	20	14	16	8	11	—	..
15+	.....	11,250	12,400	22,500	......	55	26	26	..	24	35	45	44	15	21	7	13	—	—
15+	.....	15,750	15,800	24,500	......	55	26	26	..	25	24	30	35	13	19	13	11	—	—
15+	.....	13,700	15,000	19,500	......	90	26	26	..	23	33	44	45	11	20	9	15	—	..
15+	.....	14,600	14,900	20,000	......	90	50	26	..	15	22	45	50	11	16	10	10	—	..
13.23	15+	13,000	......	21,000	......	256	.....	26	..	0	0	25	30	14	16	15	20	—	—
9.94	15+	12,250	......	22,000	......	512	.....	26	..	0	0	40	41	12	16	15	16	—	—
.....	.....	18,000	......	20,000	......	26	.....	26	..	48	67	25	37	15	29	10	20	+?	?
.....	.....	18,000	......	19,000	......	26	.....	26	..	41	69	15	37	14	29	10	21	+?	?
9.70	9.35	1,750	2,069	14,000	......	26	.....	26	..	50	88	25	28	10	10	6	7	10	..
9.32	15+	1,750	2,461	15,500	......	26	.....	26	..	64	87	24	30	12	14	7	7	10	..
15+	15+	15,000	......	18,000	......	26	.....	26	..	56	55	16	18	22	18	8	11	?	—
6.70	12.34	12,000	......	20,000	......	128	.....	26	..	10	10	15	13	9	11	8	10	?	—
15+	.....	12,500	12,750	15,500	15,750	55	26	26	26	35	67	17	21	15	20	13	13	10	..
15+	.....	18,000	14,750	19,000	17,500	26	26	26	26	45	63	18	21	15	18	13	13	10	..
.....	.....	17,500	18,000	19,000	......	26	16*	26	16*	70	68	48	40	19	17	13	14	10	10
.....	.....	16,500	16,600	20,000	......	26	16*	26	16*	82	78	30	34	26	27	14	15	15	10
.....	.....	9,000	20,000	17,000	19,000	128	.....	128	..	25	23	18	20	14	12	7	8	—	..
.....	.....	20,000	20,000	21,000	19,000	64	.....	64	..	40	40	28	14	16	13	7	7	+	..
15+	.....	12,000	12,300	20,000	20,000	26	.....	26	..	68	65	28	30	20	21	10	10	—	—
15+	.....	13,000	14,800	21,000	20,000	26	.....	26	..	65	75	40	40	18	20	9	13	—	—
.....	.....	14,250	......	16,000	......	26	.....	26	..	75	77	25	32	17	18	17	12	?	..
.....	.....	14,560	......	17,500	......	26	.....	26	..	65	75	23	32	17	23	16	12	?	..

used new one, which was a few seconds shorter. ‡ April 27 (later date) Gellé negative (B). § May 7 (later date) Gellé negative (B).

SUMMARY OF RESULTS

The results are thus roughly summarized:

Two cases of OMPC, audition distance tripled.

Two cases of OMPC with otosclerosis: Audition distance in one increased ten times; audition distance in the other increased 50 per cent.

One case of OMPC with nerve atrophy. Audition distance on one side increased over seven times and on the other side, four times.

One case of OMPC with localized perilabyrinthitis: Audition distance more than doubled.

Three cases of otosclerosis: Very slight improvement, less than 50 per cent.

Fifteen cases of otosclerosis with nerve atrophy: Five cases had audition distance more than doubled. Five had audition distance doubled or increased more than 50 per cent. Five cases had audition distance increased only slightly.

Eight cases of nerve atrophy: One had audition distance increased about ten times. Five had audition distance doubled. One had audition distance increased 50 per cent. One had audition distance increased only slightly.

High tone limit by air conduction was raised in twenty-five ears, remained stationary in five, and was lowered in four ears.

High tone limit by bone conduction was raised in eight ears, remained stationary in three and was lowered in three ears.

Lower tone limit by air conduction was lowered in twenty-seven ears and remained stationary in seven ears. Some of the latter might have been found lowered if they had been tested with a longer series of forks.

In only two cases of the series was any improvement indicated in ossicular rigidity by Gelle's test. One, Case 15, was an OMCC on one side and an OMPC on the other.

The other, Case 42, was a case of nerve atrophy.

These tests were made with a manometer, the amount of pressure necessary to affect the hearing for the C fork being noted.

Tinnitus was removed in nine cases, improved in twelve and in six there was no change.

Paresthesia, neuralgic otalgia, otitic cephalgia and sense of fulness in ears were removed in sixteen cases, improved in four and no change in one case.

The principal contra-indications for the treatment are acute purulent conditions of the tympanum, all acute conditions of the internal ear, great fatigue of the nervous system, and absolute nerve deafness.

The number of observations and tests enumerated in this paper are too small to permit the making of any sweeping generalizations, but are sufficient to show the usefulness of the treatment in many cases of acute and chronic conditions of the ears.

27 West Sixty-Eighth Street.

ABSTRACT OF DISCUSSION

Dr. Walter A. Wells, Washington, D. C.: In considering the effect of sonorous vibrations on the ear, some peculiarities of the ear as a sense-organ must be borne in mind. The auditory apparatus, which originated probably as a protective apparatus, is constantly on guard. The last of the sense-organs to go to sleep, it is the first to awake, and during waking hours, it has, apparently, no repose. Every one lives in a sonorous environment and must therefore have his auditory nerves constantly bombarded by vibrations of sound of every conceivable variety of pitch, quality and intensity. One may rest his eyes now and then by the simple, voluntary process of closing the lids. Hearing, however, is an involuntary function except so far as we may, by different degrees of attention, inhibit cortical perception. One inference from this is that an organ destined by nature to such increasing activities must suffer when it is deprived, as it is in deafness, of its accustomed stimuli of sonorous vibrations. It might also be inferred that an organ so constituted must be quite proof against fatigue and strain. The first inference I believe is a correct one, that a deaf ear suffers from a want of proper sound-stimuli, but, unfortunately, the second is not quite true, and therein comes the limitation of the therapeutic use of sound. I have not made use of acoustic exercises for the betterment of hearing, but I have endeavored to ascertain, in some measure, the behavior of the normal ear when exposed to sounds of different pitch, duration and intensity, hoping thereby to establish some of the laws of auditory fatigue, and I believe that a knowledge of the laws of auditory fatigue, as produced by sound, is an absolute preliminary requisite to the use of sound for therapeutic purposes. I first ascertained the exact electrical energy necessary to awaken a sensation of sound of a given pitch. This, which we call the threshold of excitation, is equivalent to the individual measurement of hearing for that sound. I then exposed this ear to electrically produced sounds of a selected pitch and a certain duration, and then, without loss of time, again tested the electrical energy necessary to awaken perception for the original note. Fatigue of hearing was clearly proved, though it was surprising how quickly it was recovered from. It was particularly marked for the higher notes of the scale. I employed only musical notes and continued them for comparatively short periods. Some who have experimented on animals, however, have proved that if we use very shrill disagreeable notes, for many hours continuously, we can actually produce degeneration in the nerve-cell, localized in the cochlea. In using acoustic exercises the greatest caution is necessary in order not to exceed the limit of auditory endurance as shown by the subjective sensation of the patient, and the evidences of fatigue as manifest by loss of function. The subjective sensation may be manifested by a generally disagreeable sense of irritability, a feeling of numbness and some form of tinnitus. The loss of function is ascertained by frequent, accurate functional tests.

The results reported by Dr. Hubby show that effects can be obtained, but I believe that he will agree that extreme caution must be observed in using sounds of the right quality, intensity and duration, and also discrimination in the choice of cases for this method of treatment.

Dr. L. M. Hubby, New York: It is, of course, very important to study each individual to see how he responds to the sonorous vibrations and then to give the proper length and strength of treatment. If Schambaugh's theory of auditory perception is correct, it would explain the good results obtained with this instrument rather than with those that have very few notes. The shortness of exposure to each note at a time and the covering of the entire scale within the limits of the instrument stimulate each corresponding part of the tectorial membrane with its adjacent hair cells without the production of fatigue.

Public Health and Good Roads.—In our largest cities to-day the economic health is directly dependent upon good transportation. More children die annually because of poor milk in the summer season than probably from any other cause. Fresh milk cannot be supplied to the children because of poor transportation facilities. It is true that a large part of this transportation is conducted by railroads; but a large part of this is also conducted by wagon roads. Transportation must be of the very best kind in order to bring fresh milk into our large cities. This in a measure also holds true for the smaller cities.—William De Kleine, *Public Health*, published by Michigan State Board of Health.

THE ETIOLOGY OF SPLENIC ANEMIA OR BANTI'S DISEASE

PRELIMINARY NOTE *

J. L. YATES, M.D.
MILWAUKEE

C. H. BUNTING, M.D.
MADISON, WIS.

AND

H. T. KRISTJANSON, M.D.
WAUWATOSA, WIS.

Pure cultures of diphtheroid organisms apparently identical with or closely related to the *Bacillus hodgkini* have recently been obtained by us from two spleens removed surgically in the treatment of splenic anemia.

Case 1 was under the care of Dr. J. J. Bellin of Green Bay, Wis., who kindly submitted blood-smears for examination before operation and sent the spleen immediately after its removal. The spleen was carefully sterilized externally by boiling before cultures were made from its interior.

Case 2 was a patient in the Milwaukee County Hospital, where the blood was studied before and after splenectomy and where part of the bacteriologic and experimental observations were made.

Histologic studies of the two spleens confirmed the clinical diagnosis of splenic anemia or the early stage of Banti's disease. Inoculation of dogs and rabbits was made with cultures of the organism obtained from Case 2 and with a culture obtained from a lymph-gland of a case of Hodgkin's disease, in which the diagnosis had been confirmed histologically and hematologically. In each case there were produced changes that were characteristic of the disease as described by Banti. These experiments were conducted independently at the pathologic laboratories of the University of Wisconsin and of the Milwaukee County Hospital and the results compared later.

These findings appear significant in view of the results of A. G. Gibbons,[1] who found in stained sections of six cases of splenomegaly Gram-staining streptotrichal organisms, at times segmented and at times appearing as bacillary forms.

The following clinical evidence seems confirmatory of the importance of the observations cited:

Atrophic cirrhosis of the liver, as a complication of the more usually accepted glandular variety of Hodgkin's disease, has been observed repeatedly, but is infrequent. Earlier stages of a periportal connective tissue overgrowth have, however, been noted comparatively often in the more chronic cases. This rarity of advanced cirrhosis in Hodgkin's disease is probably due, as Klein[2] has suggested, to the fact that life is, as a rule, insufficiently prolonged. In anemia splenica (Banti's disease) the first stage usually lasts from three to five years, a period quite in excess of the average duration of life in anemia lymphatica (Hodgkin's disease). This difference in duration, and in addition the relatively greater concentration of toxins in the portal circulation in Banti's disease, may explain why a Laënnec's cirrhosis is the constant terminal feature in the latter condition.

In the clinical course of splenic anemia as described by Banti[3] there is the characteristic alternation of periods of progression and remission which one of us[4] has described as so constantly present in Hodgkin's disease and has attributed to variations in the degrees of toxemia. There is the striking difference of greater chronicity in the former condition. Moreover, in splenic anemia recurrent fever has been noted which may correspond quite exactly with the febrile state first described by Murchison, but commonly designated as Pel-Ebstein.

Banti recognized that splenic anemia might be accompanied by lymph-gland enlargement in later stages and that the changes in the spleen in this affection and in pseudoleukemia-splenolymphatica were similar, wherefore he thought it possible to regard "anemia splenica as a pure form of pseudoleukemia splenica." In other words, Banti's disease might be Hodgkin's disease of the spleen.

The foregoing bacteriologic, histologic, hematologic and clinical evidence seems to warrant the conclusion that splenic anemia or Banti's disease and Hodgkin's disease are closely related, if not only variations in manifestation of a single type of infection.

---

* From the Pathological Laboratories of the University of Wisconsin and of the Milwaukee County Hospital.

[1] Gibbons, A. G.: Quart. Jour. Med., January, 1914, p. 153. Streptotrichal Organisms in the Spleen in Certain Cases of Splenomegaly, Current Comment, The Journal A. M. A., May 23, 1914, p. 1664.

[2] Klein: Berl. klin. Wchnschr., 1890, xxvii, 712.

[3] Banti: Beitr. z. path. Anat. u. z. allg. *Path.* (Ziegler's), 1898, xxiv, 21.

[4] Yates: Bull. Johns Hopkins Hosp., 1914, xxv, 180.

THE USE OF ANTISTREPTOCOCCUS SERUM IN CHRONIC ARTHRITIS *

HOMER K. NICOLL, M.D.
CHICAGO

An extensive literature bears witness of the attempts which have been made in the past few years to make some use of passive immunization by means of antiserums against various forms of streptococcus infection. The serums prepared by Marmorek, Aronson, Moser and Menzer were perhaps given the most exhaustive trials. It appears that only a moderate and only a variable degree of success has been attained as compared with some of the effective immune serums, and it seems probable that some of the factors in the production or transfer of the immune bodies are at fault. The causes of this discrepancy have been sought in various parts of the immunizing process such as a lack of specificity in the organism used, the absence of polyvalence, insufficient dosage, and the apparently demonstrated fact that the streptococcus develops no true antitoxin, so that any immunity must be entirely phagocytic and would require frequent renewal of the specific *opsonins* in the immune serum to produce any permanent effect.

In view of the recent investigations which seemed to indicate that the streptococcus was a common agent in the production of the chronic as well as the acute forms of arthritis,[1] it was thought that possibly some of the defects of former serum treatment might be avoided and a serum produced which would be of benefit in some of the intractable cases of chronic joint disease. The serum used was a polyvalent horse serum prepared by Drs. Gatewood and Moore[2] working in the Otho S. A. Sprague Institute, the immunizing organisms consisting of from twenty-five to thirty strains of streptococci which had been isolated from the enucleated tonsils or the joint fluid of arthritis patients. The first portion of the serum used was not refined or heated. As toxic effects were observed following its use, an effort was made to lessen them by heating to 50 C. for ten hours and the serum was concentrated by a modified Banzhaf method[2] in order that the mass of each injection might be lessened. The original unheated serums were used in doses of from 20 to 30 c.c., and in a number of instances small preliminary injections of 1 or 2 c.c. were made from two to twenty-four hours before the large injection in the hope of avoiding allergic reactions by the production of a temporary refractory condition to anaphylaxis. This method did not appear to be successful in avoiding toxic symptoms; and, after several trials, a succession of gradually increasing frequent doses of 2, 6, 8, 10 and 12 c.c. was adopted as more likely to avoid dangerous sensitization. The maximum dose of the concentrated serum was not more than 12 c.c. since the viscosity of the serum prevented its rapid spread through the subcutaneous tissue and the use of larger amounts caused excessive pain.

---

* This work was carried *on* under the Dane Billings Fellowship and in the laboratories of the Otho S. A. Sprague Memorial Institute.

[1] Beattie: Jour. Path. and Bacteriol., 1904, *ix, 272.* Davis, D. J.: Chronic *Streptococcus* Arthritis, The Journal A. M. A., Sept. 6, 1913, *p. 724.* Billings, Frank: Chronic Focal Infections and Their Etiologic Relations to Arthritis and Nephritis, Arch. Int. Med., April, 1912, p. 484; Chronic Focal Infection as a Causative Factor in *Chronic* Arthritis, The Journal A. M. A., *Sept. 12, 1913*, p. 819.

[2] Heinemann and Gatewood: Jour. Infect. Dis., 1912, x, 416.

The serum was usually administered subcutaneously, in the interscapular region, a needle of rather large caliber being used. On three occasions the injection was made into the knee-joint after the withdrawal of fluid. In the subcutaneous injections every effort was made to avoid accidental intravenous injection. The needle was always withdrawn a short distance from its extreme insertion and suction made with the piston to determine if the point was in the lumen of a vein. The possibility, however, of tearing a vein with the broad point of the needle and of forcing in small amounts of the serum under the strong pressure necessary for the injection cannot be denied. The patients treated with the serum, twenty in number, were all in the Presbyterian Hospital on the service of Dr. Frank Billings and to a large extent in the beds maintained by the Sprague Memorial Institute. They received in conjunction with the serum the benefit of all possible measures for the relief of their symptoms, such as the removal of apparent foci of infection, complete rest in bed, a carefully regulated and nourishing diet, massage, streptococcic vaccines, the application of casts and braces, and an improvement of their mental attitude toward the disease. In all of the cases the disease was polyarticular, and all evidences seemed to indicate that the streptococcus was the infecting agent. The duration of the arthritis varied from one to fifteen years, the rage being about five years. The youngest patient 2 and oldest 56, seven of the twenty being under seven over 45. None gave a history of or hay fever and none had received any pre- jection of horse serum ry case, vaccines we used in conjunction serum, and whenever possible they were from organisms solated from foci of hich seemed probable sources of the sys- Most commonly they were from the infected sinuse of the head, or alve- pockets of peridental pus, and con- ococci in a mixture of the hemolytic varieties with small proportions of hylococci and Friedländer bacilli.

The vaccines were prepared in the usual manner and given in doses of from 50 to 200 millions at six or eight day intervals. They were usually given from twenty-four to thirty-six hours previous to the serum injections in the effort to have the serum present during the rising stage of the opsonins. In four of the cases extremely large doses, from 3 to 4 billions, were given for a short time, but no added beneficial result was observed.

The immediate results of the serum injections consisted of a sharp rise in the specific streptococcic opsonins and the clinical manifestations of serum sickness. At no time was there observed any especial relief from the pain and disability with which the patients suffered. The opsonins, especially with the first few large injections, rose rapidly to 1.5 to 2, and declined only after two or three days, usually never reaching the original level. After repeated injections, and especially with the smaller doses of serum, the rise was more gradual and steady. In every case the opsonins were maintained above the normal control by the combination of serum and vaccine. The phagocytic index was recorded and varied directly with the opsonins, although the variations were always less extensive. A slight rise in the number of leukocytes was observed in all cases in which the count was made following a serum injection, the highest number being 12,400.

Serum sickness, consisting of various degrees of headache, nausea, rise in temperature, aching of joints, and urticaria, was observed in eighteen of the twenty patients receiving the serum. The chief discomfort arose from the urticaria, which was very severe at times and recurred in some cases after each of the first three or four injections. Five of the patients developed rather marked symptoms of anaphylactic shock and in four cases it was so severe as to appear dangerous to life. The symptoms appeared in all cases within from one-half to three minutes after the subcutaneous injection, varying greatly in degree, the most constant ones being tingling and burning sensations in the face and hands, dyspnea with cyanosis, nausea and extreme weakness. In the more severe attacks, dyspnea and dysphagia were very marked and the pulse very weak and irregular. The duration of the acute attack was usually not more than three or four minutes, but in one instance the symptoms recurred in three lessening waves during a period of thirty minutes. This patient suffered the most severe shock, and during the first attack the respirations and pulse were entirely absent for a short period.

The hypodermic administration of epinephrin and the use of ammonia or some other stimulant was followed in the other cases by a speedy recovery. Morphin and atropin were also used with an apparently favorable action. Following the attacks, the patients complained chiefly of general malaise, and weakness, often with a severe headache. In one case an estimation of the opsonins was made with serum taken immediately after the shock, and a very low stage recorded. Reasoning from this observation, Dr. J. H. McClellan, who was assisting in the work, attempted to discover some constant relationship between a declining stage of opsonin and the occurrence of anaphylactic symptoms. It appeared after some observation that the injections given during a prolonged negative phase were more frequently followed by shock, and an effort was made in the later work to avoid this coincidence.

use
and c
27 W

Dr. Wal
the effect of
ties of the c
The auditory
protective app
the sense-organs
during waking h
one lives in a son
his auditory nerves
sound of every con

The anaphylactic symptoms occurred in four of these five cases and appeared to increase in violence. They did not appear with each injection but at intervals and never with the first injection. Among the five cases, it appeared first after the seventh, third, sixth, third, and seventh injections, the time which had elapsed since the last preceding dose varying from two to twenty-six days. In all, eight severe shocks were observed. The opsonic curve in these patients did not vary markedly from the average of the other fifteen cases.

The later or final results of the use of the serum are difficult to estimate because of the simultaneous use of so many other remedial agents. In the majority, especially when the process was not of too long duration, there has been a definite improvement, and in some the change has been remarkable.

In comparison with an equal number of patients at approximately similar stages of the disease who were in the hospital at the same time and who received identical treatment with the exception of the serum, no very definite advantage could be observed. The opsonic indexes of those who did not receive serum did not rise, as a rule, so rapidly, and it appeared that the serum and vaccine had some complementary action when given together. When considered over a long period of time, however, their opsonins remained as consistently high, and the clinical improvement was apparently as pronounced as in the serum patients. It appeared at least that any added gain from the use of the serum was not sufficient to compensate for the severe pain and discomfort attending its administration and the dangers of the anaphylactic shock.

In addition to our cases, Dr. J. J. Moore of St. Luke's Hospital administered the serum to four patients suffering with chronic arthritis probably of streptococcal origin. The treatment differed from ours in that the serum was the only therapeutic agent employed over periods ranging from two to eight weeks. In no instance was there any improvement which could be accredited to the serum. One patient had an acute inflammatory arthritis involving the ankle, toe, and finger joints during the course of serum treatment. Although this patient received from 10 to 15 c.c. of serum daily, the joint inflammation persisted. In a second case in which the tonsils had been removed before serum therapy was commenced, the throat became acutely inflamed and persisted for some time in spite of the administration of serum. In this case a virulent hemolytic streptococcus was isolated from the throat.

The reactions following the serum injections were usually mild, local in character, often nothing more than an erythema, or pruritis around the site of injection. An edema of the lower limbs was observed in one patient following daily doses of 10 to 15 c.c. of the serum. This was thought to be a peculiar allergic reaction since the heart and urine were normal. There was no definite rise in the opsonic index in any of these patients during the serum treatment.

CONCLUSIONS

1. The administration of horse serum in repeated doses may be followed in 25 per cent. of the cases by dangerous degrees of anaphylaxis, even in patients who give no history of previous use of horse serum or of asthmatic symptoms.

2. Heating and aging the serum does not completely remove its toxicity.

3. Clinical observation and the estimation of immune bodies do not show any added advantage from the use of an antiserum in chronic arthritis even when a concentrated serum with much greater potency than the usual commercial serums was employed. In two cases, acute streptococcus infections arose during and in spite of its administration.

4. Attempts to increase the value of such a serum by concentration have not been successful, so far as its employment in chronic arthritis cases is concerned. Whether or not such concentrated serum might have advantages in acute streptococcus infection has not been determined.

5. In view of these facts, the use of antistreptococcus serum in the treatment of chronic arthritis is, under present conditions, neither advisable nor justifiable.

122 South Michigan Boulevard.

Therapeutics

PREVENTION IS GREATER THAN CURE

(Continued from page 2133)

XII

DISINFECTION OF SCHOOLS

In view of the fact that contact is apparently a necessity for the spread of almost all, if not all, of the contagions that visit schoolchildren, disinfection, as so long practiced, is unnecessary and a delusion. Also the closing of schools is unnecessary. Fumigation of schoolrooms and schoolbuildings has been abolished in many large cities. The ordinary care of the schoolroom involves the free admission of sunlight and pure air and the removal of dust by a vacuum cleaner or by moist sweeping or mopping.

If a contagious disease occurs, (*a*) the child's desk, chair, and the immediately surrounding desks and chairs, as well as the floor, should be sprayed and washed with a strong solution of a germicide or disinfectant. (*b*) The child's books, pencils, etc., should be destroyed, unless the books are valuable, in which case they should be subjected to dry heat or to formaldehyd cabinet fumigation. (*c*) The pupil's clothing should be boiled or efficiently fumigated before he returns to school.

There is no question that most all so-called children's contagious diseases are more prevalent during the months that schools are in session than during vacation times. Hence schools do distribute infection by allowing crowding and close association with infected persons; also because the confinement diminishes the resisting power of the well. Therefore, the necessity for cleanliness, freedom from dust and for fresh air and sunlight is readily recognized.

DISINFECTION

Fresh air and sunlight let freely into infected rooms and into the sickrooms aid in killing germs and curing the patients. Schoolrooms with open windows and open-air schools have less contagion than ordinary schoolrooms.

Oxygen is not a very active bactericidal agent. Ozone if brought to the germ is effective, but pure ozone is difficult to furnish to infected rooms or to introduce into infected parts of the body, and ozone treatments of infection are generally fallacious and fraudulent. Hydrogen peroxid solutions, if fresh and uncontaminated, are efficient in killing germs, when brought into contact with them. To be efficient the strength should be 50 per cent. of aqua hydrogenii dioxidi.

Fumigation after scarlet fever, diphtheria and measles does not seem to pay for the cost and trouble it causes, and should be abolished. Proper fumigation with strong formaldehyd, carried out by boards of health, should still be done for small-pox and tuberculosis, and perhaps for erysipelas, childbed fever and tetanus, especially in hospitals. Spraying with germicides of all the immediate surroundings of an infected patient is the method of disinfection now most satisfactory. All washable clothing and bedclothing should be boiled: all other clothing should be baked and put into the sunlight. Carpets and rugs should be washed with antiseptics. Various washing solutions may be used, such as chlorinated lime solutions, 5 per cent., formaldehyd solutions, corrosive sublimate solutions 1 : 500, 5 per cent. phenol (carbolic acid) solutions, or better, the higher coal-tar disinfectants, as liquor cresolis compositus. The New York Board of Health orders the woodwork and floors scrubbed with hot solution of 1 pound of washing soda to 3 gallons of hot water. Bedding and night clothing are ordered soaked in phenol solutions and then boiled in soapsuds for half an hour. Books and toys should be burned.

Dr. Dixon,[1] Commissioner of Health of Pennsylvania, suggests as a substitute for the combination of potassium permanganate and formaldehyd, the following: "sodium dichromate, 10 ounces avoirdupois; saturated solution of formaldehyd gas, 1 pint; sulphuric acid, commercial, 1½ fluidounces." He states that the sulphuric acid and formaldehyd gas form a stable solution. "This, after it cools, should be poured over the crystals of sodium dichromate spread out in a thin layer over the bottom of an earthenware vessel having ten times the capacity of the volume of the ingredients used." He finds this process more rapid than the combination with potassium permanganate.

The danger to others lies in carriers and missed cases, those who are so mildly sick as to escape medical care.

The contagious disease hospital is the only safe place for tenement cases; this prevents the infection of others, as families in tenements have no isolation rooms and no trained nurses to carry out disinfection.

PERSONAL HYGIENE OF SCHOOLCHILDREN

The schoolteacher and the trained nurse should note and correct many things found wrong in a child. They should also teach many simple truths as to hygiene. Only a few obvious hygienic mistakes will be touched on before conditions that may cause infection of others are discussed.

Feet.—A good working rule is for broad-toed shoes always; no heels for the earlier years of the child; low heels later; and if must be, still later, heels a little higher. Rubber heels are all right if desired, but not rubber soles, unless perhaps for playing tennis. The weight of a rubber-soled and heeled shoe is too great for constant, or even for a few hours' continuous use. Also, completely rubber-soled and heeled shoes cause the feet to perspire, to say nothing of the undesired insulation of the person. Low shoes for summer, high shoes for winter and rainy weather, and storm shoes or rubber overshoes for rain and snow are necessities for health. If a child wears rubber boots in stormy weather, they should be removed while in school. Occasional observations of a child's feet and insistence that proper shoes be worn will prevent future corns, bunions and weakened arches. Too short and too narrow-toed shoes ruin the feet of young men and young women. Also, this continuous dancing fad causes corns and callouses to occur on different parts of the toes, which means future trouble, if not properly cared for or prevented.

Hygiene of the Skin.—Briefly to refresh our memory as to the anatomy and physiology of the skin, it may be noted that the different layers of the cells of the epidermis, or horny layer of the skin, change their chemical structure as they advance to the outer layer. They gradually die, so to speak, and then are cast off. This layer contains no blood-vessels and no lymph-channels, and is a distinct protection to the body against the absorption of toxins and germs. If this layer is broken by injury, an absorptive area is immediately presented, and infection may readily occur. Nature makes this protective layer thickest where injury is likely to be the greatest, such as the palms of the hands and the soles of the feet. The hair and nails are really projections of this layer of horny cells.

Some drugs in solution or ointment may be rubbed or massaged through the horny layer into the layers of absorption, that is, the rete layer. Irritants may also reach this layer after more or less corrosion or removal of the epidermal layer, and local inflammation may be caused. It is the rete layer that is especially inflamed in many conditions of eczema.

The sebaceous glands of the skin may be overactive or underactive. If they are overactive, too much oily substance reaches the skin and hair and the parts become greasy. If the opening of a gland becomes clogged with dust or other particles, the canal and gland become more or less congested and the result is a so-called comedo or blackhead, and pathogenic germs may grow, especially the pus-forming germs, and a condition of acne or infection occur. If these sebaceous glands secrete insufficiently, the skin becomes dry and scaly, perhaps brittle, cracks readily, insensible perspiration is interfered with, and the whole system may be more or less affected, depending on the seriousness of this condition.

The sweat-glands must be sufficiently active for the body to be in perfect health; they largely eliminate water, reduce the temperature of the body and keep the internal temperature normal. The few salts and the small traces of nitrogen that are eliminated by the sweat-glands may be disregarded; suffice it to say that the excretion of poisonous nitrogen compounds by the sweat-glands is very small. The odor of the perspiration varies with different individuals and with different races. Not infrequently it is intensely disagreeable, and the secretion, both as to odor and character and the amount of decomposition of fatty acids, varies with the part of the body from which the perspiration comes. When the sweat from an individual gives off a very disagreeable odor, the condition is termed bromidrosis, and requires treatment by a physician. The condition should be noted in children, and prevented if possible.

Dandruff and dirty, greasy scalps and insufficient cleanliness of the hair should be noted, and instructions given as to the proper care of the child's head. A good daily brushing, and a simple castile soap shampoo weekly (or at least once in two weeks), with proper drying of the scalp, should be given by the mother.

---

[1] Dixon, S. G.: A Substitute for Potassium Permanganate to Liberate Formaldehyd Gas from a Water Solution, The Journal A. M. A., Sept. 19, 1914, p. 1025.

Besides the advice given the parents as to the care of the child's scalp, the teacher or nurse should note the condition of the child's skin as to cleanliness, greasiness, dryness or eruptions, and proper advice should be transmitted to the parents. Also, the condition of the clothing and the kind of underclothing should be noted, especially in young children, and if considered improper, similar advice should be given the parents on the subject of underclothing.

Children and parents should be instructed not to use strong, irritant soaps, and parents should be urged to seek medical advice when a child's skin is too greasy and acne of the face is beginning to develop, when the child's skin is too dry for health, and when there is any eruption. They should be warned against the use of all nostrums, whether ointments or liquids, as liable to cause more harm than good. Parents should be advised to give their children only the simplest kind of food, to give them no tea and coffee, and to forbid their eating large amounts of sweets; especially is such advice necessary when there are eruptions on the skin.

Contagious Skin Diseases—The principal contagiums that occur on the skin of schoolchildren are ringworm, body- and head-lice and scabies. None of these conditions can be well treated at the school or in dispensaries, but the treatment must be carried out at the home of the infected child. No verbal or written instructions will accomplish half so much as a visit from the trained nurse and her personal instruction of the parents. Also she can take a general survey of the other children of the family and of the household.

It is not necessary to describe the treatment for these several troublesome but simple conditions. The various parasiticides are well understood, but the whole success of treatment lies in the care exercised and the curative measures taken in the child's home. When the patient's family can afford it, the Roentgen-ray treatment of ringworm is perhaps the ideal treatment.

Body-lice rarely occur in children and demand a cleansing bath and the baking of the underclothing in an oven at a temperature above the boiling point, but not high enough to burn the clothing.

Pediculosis Capitis.—Aside from being an evidence of neglect, the head-louse may be the means of conveying infection, for example, of typhus fever.

Dr. Jacob Sobel[2] of the Department of Health of New York City describes the method of handling this infection in New York, and also shows how greatly the disease has been reduced by the home instructions that the board of health has inaugurated. Following are the instructions issued by the New York board of health to the parents of children who are found to be infected with pediculi:

> Children affected with vermin of the head are excluded from school. The following directions will cure the condition:
>
> Mix ½ pint of sweet oil and ½ pint of kerosene oil. Shake the mixture well and saturate the hair with the mixture. Then wrap the head in a large bath-towel or rubber cap so that the head is entirely covered; the head must remain covered from six to eight hours.
>
> (Tincture of larkspur may be used instead of oil mixture. The directions for use are the same.)
>
> After removing the towel, the head should be shampooed as follows:
>
> To 2 quarts of warm water add 1 teaspoonful of sodium carbonate. Wet the hair with this solution and then apply castile soap and rub the head thoroughly about ten minutes. Wash the soap out of the hair with repeated washing of clear warm water. Dry the hair thoroughly.
>
> Nits: If the head is shampooed regularly each week as above described, it will cure and prevent the condition of "nits."

Vulvovaginitis.—Just what methods are advisable to determine that a female child has vulvovaginitis, which may be transmitted to others by the school water-closets and by other means of transmission, is difficult to outline. It must be recognized, however, that a great deal of this condition occurs in young girls. The discharge may be non-specific, or may be associated with some eruption or irritation of the genital region, or it may be actually due to an infection from gonococci. Microscopic examination and bacteriologic cultures are the only means of determining the character of the discharge.

It being ascertained that a girl has a discharge, it is the duty of the medical inspector or trained nurse to insist that the family have their physician properly treat the patient. The necessity of bacteriologic examination must be emphasized, the danger of contagion urged, and the necessity for ascertaining the source of the child's infection discovered, if possible.

It is certain that these little patients frequently masturbate; whether this is a cause of the inflammation, or whether the irritation causes the bad habit, is a matter of unimportance. Feeble-minded girls are likely to have a vaginal discharge, and have been found to be often infected with gonorrhea.

Dr. F. G. Taussig[3] urges the following measures to prevent the vaginal infection from entering institutions such as orphan asylums and children's homes:

First, he would examine a vaginal smear from all girls applying for admission, and if gonorrheal infection is discovered, the child should be excluded until cured. If the disease is discovered in an institution, the patient should be isolated and the nurse in attendance should take measures to prevent the infection of others.

As further preventive measures of gonorrheal infection of female children, Taussig advises that 1 drop of a 2 per cent. silver nitrate solution be instilled into the vestibule of the vagina at the birth of every female child whose mother shows evidence of gonorrhea. He would advise this even if only about 5 per cent. of gonorrheal vaginitis in young children occurs directly after birth. He also believes that "the adoption of the U-shaped seat with low bowl and other precautionary measures to prevent the spread of the infection in the lavatories in schools, playgrounds, comfort stations and tenements" would prevent a great many cases of innocent infection.

The curative treatment is the gentle, frequent cleansing douche, as warm boric acid or borax solutions, and the more or less frequent applications of silver salt solutions. The little patient should not be considered cured until several examinations of the smear have shown gonococci to be absent.

(*To be continued*)

---

[2] Sobel, Jacob: New York Med. Jour., Oct. 4, 1913, p. 656.

[3] Taussig, F. G.: Am. Jour. Med. Sc., October, 1914, p. 480.

THE JOURNAL OF THE
AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street . . . Chicago, Ill.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

Contributors, subscribers and readers will find important information on the second advertising page following the reading-matter

SATURDAY, DECEMBER 19, 1914

GASKELL AND THE PHYSIOLOGY OF THE HEART

The stirring events of recent weeks, when men's minds have been turned from the paths of intellectual life into other fields of human activity, should not make us oblivious of the names which deserve honor because of what they represent in science. For this reason we shall not forego the opportunity to refer to the death of Dr. Walter Holbrook Gaskell at his home in England, Sept. 4, 1914, at the age of 67 years. To this talented physiologist, stimulated by the environment of the Cambridge school under the influence of Michael Foster and trained in Ludwig's laboratory at Leipsic, we owe some of the fundamental observations regarding the mechanism of the phenomenon known as heart-block — a condition to-day recognized clinically and studied experimentally wherever the medical sciences flourish. It was Gaskell who invented the term "heart-block" and produced it experimentally by clamping the auriculoventricular and sino-auricular grooves, which he calls "the two natural blocking points" of the muscular contraction wave. One of his biographers, Dr. Fielding H. Garrison of the Army Medical Museum in Washington, has summarized the importance of Gaskell's endeavors in this field as follows: In his view, the original Stannius experiments become simple cases of temporary block. This view has been brilliantly confirmed by the discovery of the vestigial muscular structures known as the auriculoventricular bundle of His and the sino-auricular node of Keith and Flack; also by the clinical and pathologic findings in the disease described by Morgagni in 1761 and now known as heart-block or the Stokes-Adams syndrome. Gaskell even produced the two-, three- and four-time gallops of modern clinicians, in which the ventricle drops one or more of its beats. Schiff's observation that the ventricle of a dying heart beats slower than the auricle is interpreted as the effect of a gradually increasing block. Gaskell also produced the clinical condition known as "fibrillation of the heart" in an isolated strip of cardiac muscle, interpreting the phenomenon as due to blocking of the connections between individual muscle cells. In recent medicine, the various rhythmic disorders of the heart are regarded, not as cases of nervous unbalance, but as the effects of blocking of the peristaltic wave which passes from sinus venosus to bulbus arteriosus, and from muscle fiber to muscle fiber.[1]

In these days, when the relative merits of the neurogenic and myogenic hypotheses of the causation of the heart-beat are still being debated vigorously, we may recall that it was the early work of Gaskell and of Engelmann in particular that furnished serious objections to the neurogenic thesis earlier supported. These physiologists came to the conclusion that the source of the cardiac rhythm was to be found, not in the ganglia scattered about its cavities, but in the muscular cells themselves. It was their contributions which inaugurated the revival of the myogenic theory.

Aside from these classic researches on the motor mechanism of the heart, science owes to Gaskell numerous important contributions to other chapters of biology, notably on the sympathetic system and on organic evolution. To those who appreciate the confusing detail in the factors concerned in the latter field, the trend of Gaskell's mind may be described by his ability "to state the problems in terms of biologic phenomena rather than in metaphysical terms."[2]

THE PITUITARY BODY

The discovery by Marie[3] that an intimate relationship exists between the pituitary body and acromegaly created a new interest in a body which previously had been of interest purely on account of its anatomic relations and its histologic structure. About a decade later Oliver and Schäfer[4] found that extracts made from the entire pituitary body produced a rise in blood-pressure when given intravenously. By working with extracts made from its various parts, Howell[5] concluded that the pressor effect was produced only by posterior lobe extracts. Later it was found by others that posterior lobe extracts caused diuresis, dilatation of the pupil, an increase in the secretion of milk and the contraction of unstriped muscle, especially that of the arteries, uterus, intestines and bladder.

The evidence that the pituitary body is essential to life is now convincing. Paulesco[6] and Cushing,[7] using an improved technic, showed that fatal results are to be expected from removal of the anterior lobe. Partial removal of the anterior lobe led to striking changes in metabolism.

---

1. Garrison, F. H.: Walter Holbrook Gaskell, Science, 1914, xl, 802. Other biographies will be found in Nature, 1914, xciv, 93; Brit. Med. Jour., 1914, No. 2804, p. 559.
2. Pike, F. H.: Dr. Gaskell's Work on Organic Evolution, Science, Dec. 4, 1914, p. 805.
3. Marie, P.: Rev. de méd., 1886, vi, 297.
4. Oliver, G., and Schäfer, E. A.: Jour. Physiol., 1895, xviii, 277.
5. Howell, W. H.: Jour. Exper. Med., 1898, iii, 245.
6. Paulesco, N. C.: *L'hypophyse du cerveau*, Paris, 1908.
7. Cushing, Harvey: The Hypophysis Cerebri, The Journal A. M. A., July 24, 1909, p. 249.

The knowledge that extracts of the anterior lobe, which is glandular in structure, are without marked immediate effects when injected intravenously, whereas extracts of the posterior lobe, which is a nervous structure, produce striking immediate results is very interesting when one considers that removal of the posterior lobe is compatible with life, while removal of the anterior lobe terminates fatally.

Feeding experiments have not been wholly satisfactory. Wulzen[8] has recently found that when young fowls were fed with anterior lobe substance a retardation of growth resulted. This effect was especially marked in males.

From a therapeutic point of view the most striking results have come from the administration of posterior lobe extracts. Favorable results have been reported by many from the use of posterior lobe extracts in the treatment of post-partum hemorrhage, uterine inertia and postoperative shock: on the other hand, its use in labor is in certain cases followed by grave results, rupture of the uterus being reported after the repeated administration of some commercial preparations.[9]

The recent work from the Hygienic Laboratory by Roth[10] of the Public Health Service on the standardization of pituitary extracts may throw some light on some of the results obtained in therapeutics. Roth examined preparations obtained from six different manufacturers and found that the activity of commercial posterior lobe extracts varied widely when tested by three different methods, their relative activity on the isolated uterus of the guinea-pig being as 7.5 to 1. The commercial preparations which have been responsible for untoward results have therefore been shown to be exceedingly active ones. Roth could assign no positive reason for such great variability. He concludes that there is need for uniformity in the strength of commercial pituitary preparations, and to bring this about advocates their standardization on the isolated uterus of the virgin guinea-pig, suggesting an arbitrary standard. He further suggests that clinical studies should then be made to determine the therapeutic dosage.

AN INTERRELATION BETWEEN OXYGEN AND CARBON DIOXID IN THE BLOOD

Among the numerous illustrations of physiologic regulation in the functions of the body none exhibits a greater degree of exactness than those furnished by the absorption and dissociation of the gases of the blood. With respect to the relation of oxygen to the circulating medium this has been demonstrated more strikingly perhaps than is true in the case of the carbon dioxid which ordinarily accompanies it. With the demonstration of the unique rôle of the latter gas in regulating respiration, and presumably other activities of the organism, has come an increasing knowledge of its exchange between tissues, blood and external atmosphere, respectively. The average arterial blood, in which the hemoglobin is 96 per cent. saturated, contains 17.76 c.c. of oxygen in combination per hundred c.c. of blood, or a total of 18.1 c.c. if to this is added the small amount of the gas which is in simple solution at the oxygen pressure of arterial blood. Under normal conditions the same individual shows a definite and constant relation between the pressure of carbon dioxid and the amount of this gas taken up by fresh defibrinated human blood. It does not differ much for different individuals. According to Christiansen, Douglas and Haldane,[1] at 40 mm. pressure of carbon dioxid, 100 volumes of oxygenated human blood take up about 50 volumes of carbon dioxid; and at about 80 mm. pressure 15 additional volumes are taken up.

These investigators, working in the Physiological Laboratory at Oxford and the Institute of General Pathology at Copenhagen, have demonstrated that at a given pressure of carbon dioxid, blood which has been deprived of oxygen takes up considerably more carbon dioxid than oxygenated blood. The oxygen—and the same is true for carbon monoxid—thus tends to drive out carbon dioxid, and this action depends on the saturation of the hemoglobin. For the metabolic performances of the organism it is interesting to learn that the oxygenation of the blood in the lungs helps to drive out carbon dioxid, and increases by one-half or more the amount of carbon dioxid given off at each round of the circulation. The deoxygenation of the blood in the tissues in turn helps the absorption of carbon dioxid and diminishes by about 40 per cent. the rise of carbon dioxid pressure in the venous blood.

If these facts are correct it follows that the giving off of carbon dioxid by the lungs is to a large extent consequent on the taking up of oxygen. Haldane and his colleagues have insisted for some time that under a variety of conditions the uptake of oxygen may be supported by physiologic activity of the lung epithelium. Under such conditions, therefore, the giving off of carbon dioxid would also be dependent on this activity. In any event these interrelations between the movements of the two gases, long ago suspected and now more definitely demonstrated, give an added illustration of the interdependence of many physiologic functions in the organism.

In connection with the investigation of the behavior of carbon dioxid in human blood,[1] it has been possible to calculate the rate of blood-flow through the lungs. Every one must realize, from general considerations, that this involves rapid change. The statement that the rate of this blood-flow may amount to 7.7 liters (8.1 quarts) per minute for a person with a total blood volume of 4.7 liters (4.9 quarts) offers a concrete instance of the marvelous performances of the human circulation.

---

[8] Wulzen, R.: Am. Jour. Physiol., 1914, xxxiv, 127.

[9] Herz, E.: Zentralbl. f. Gynak., 1913, xxxvii, 720. Espeut, G.: München. med. Wchnschr., 1913, lx, 1774.

[10] Roth, G. B.: Pituitary Extract, The Journal A. M. A., Aug. 8, 1914, p. 476; Hyg. Lab. Bull. 100, U. S. P. H. S., 1914.

[1] Christiansen, Johanne; Douglas, C. G., and Haldane, J. S.: The Absorption and Dissociation of Carbon Dioxide by Human Blood, Jour. Physiol., 1914, xlviii, 244.

SOURCES OF CEREBROSPINAL FLUID

It has been thought that the cerebrospinal fluid is derived from the choroid plexuses and possibly also from the nervous tissues by way of the perivascular spaces, but conclusive evidence as to its source has been lacking until recently. Thus Dandy and Blackfan,[1] and also Frazier and Peet,[2] have produced internal hydrocephalus in animals by blocking the aqueduct of Sylvius. Then Weed,[3] under the direction of Cushing, took a step nearer to the final solution of the problem by introducing a cannula directly into the third ventricle from the fourth. When the cannula is introduced there is at first a rapid flow of several drops, whereupon a gradual diminution ensues, and after three or four hours, all flow ceases. The fluid obtained in this way appears identical with that in the subarachnoid spaces. By Weed's method it will be possible to study the action of drugs and other factors on the production of fluid, that is, on the functions of the choroid plexuses.

Around the cerebral vessels are spaces which extend to the capillaries and communicate into the subarachnoid spaces. If the direction of the flow of the fluid in these perivascular spaces could be determined, light would be thrown on another possible source of the cerebrospinal fluid. By subarachnoid injection according to the method already discussed in these columns,[4] Weed found no granules of Prussian blue in the perivascular spaces after injection at low pressure. After injection under medium pressure granules were found in the perivascular and pericapillary spaces, not, however, in the vessels, but sometimes adhering to the periphery of the nerve cells and their prolongations. On injection under high pressure, granules sometimes were found in the lumen of capillaries. These results point unmistakably, it would seem, to a flow from the capillaries into perineuronal and perivascular spaces and thence into the subarachnoid spaces, where the fluid mixes with that from the ventricles.

These results point clearly to a dual source of the cerebrospinal fluid, namely, the choroid plexus and the cerebral capillaries. It will be recalled that by the same method of subarachnoid injection, Weed[4] could demonstrate that the cerebrospinal fluid escapes largely by way of the longitudinal sinuses, and also along the nerves. These results certainly go far to give us a clear idea of the circulation of the fluid.

THE CORPUS LUTEUM AND OVULATION

Aside from the immediate scientific value of the experiment, there is a peculiar sort of satisfaction in being able to duplicate new facts found in one species of animals by observations on another species. Whenever a process or a structure is seen to be common to many types, the frequency of its occurrence gives a justification for belief in its universality. It is often asked whether physiologic or pathologic phenomena noted in the dog, cat, rabbit or other laboratory animals are safely referable, under similar conditions, to man. The more wide-spread such phenomena are in the animal kingdom, the more justifiable is the reliance which we feel in upholding the belief in their broad applicability. Comparative physiology and pathology deserve the earnest consideration of the student of human biologic manifestations.

In view of what has just been said, there is a special satisfaction derived from the report that the desiccated fat-free substance of the corpus luteum of the cow, when injected in suspension, in proper dosage, into an actively laying fowl immediately inhibits ovulation. The duration of this effect varies with different birds from a few days up to two or three weeks. After the bird begins ovulating again the laying goes on unimpaired. The same effect is produced by the injection of extracts of the lutear substance, either intravenously or intra-abdominally. The active substance producing the inhibition is inactivated by boiling.[1] As Pearl and Surface,[1] who ascertained these facts, point out, the ovulation-inhibiting function of the corpus luteum is specific in a physiologic or chemical sense. The fact that the same chemical substance inhibits ovulation in mammals and birds, the latter of which do not possess any organ corresponding to the one which produces the substance in mammals (the corpus luteum), suggests that natural selection probably had nothing to do with the evolution of either the organ or the function in the mammals. If it had, one would expect that the function would have been perfected as a specifically and exclusively mammalian one.

The chief interest, to the student of medicine, in the effect of corpus luteum substance on ovulation in the fowl lies in its corroboration of the well-known work of Leo Loeb[2] on mammals. He has shown that one function of the well-developed corpus luteum in the mammalian reproductive cycle is to inhibit ovulation. To the confirmation which this finding has already received, these new studies in avian reproduction give added support. The corroboration of one more instance of an important physiologic function specifically controlled by a chemical regulation is in line with recent developments. It suggests, to quote Pearl and Surface, that since it is possible to obtain a chemical substance which inhibits ovulation, without in any way otherwise affecting the normal vital processes of the bird, it will also probably be possible to find a chemical substance which has the opposite action and will stimulate, or better activate, the ovulation mechanism.

---

[1] Dandy, W. E., and Blackfan, K. D.: An Experimental and Clinical Study of Internal Hydrocephalus, The Journal A. M. A., Dec. 20, 1913, p. 2216.

[2] Frazier and Peet: Am. Jour. Physiol., 1914, xxxv, 268.

[3] Weed: Jour. Med. Research, 1914, xxxi, 93.

[4] Absorption of the Cerebrospinal Fluid, editorial, The Journal A. M. A., Nov. 21, 1914, p. 1857.

[1] Pearl, R., and Surface, F. M.: Studies on the Physiology of Reproduction in the Domestic Fowl, IX, On the Effect of Corpus Luteum Substance upon Ovulation in the Fowl, Jour. Biol. Chem., 1914, xix, 263.

[2] Loeb, Leo: Jour. Morphol., 1911, xxii, 37; Zentralbl. f. Physiol., xxv, No. 9; Virchows Arch. f. path. Anat., 1911, ccvi, 278; Deutsch. med. Wchnschr., 1911, No. 1, and other papers.

"MOTHERHOOD WITHOUT FEAR"

A few months ago *McClure's* magazine announced to the prospective mothers of the country that a remarkable discovery had been made by which the pangs of childbirth were to be forever abolished. The announcement was made in the form of an article by two women, apparently of no medical training. The remarkable discovery was the long-discredited scopolamin-morphin analgesia, first suggested in 1902. This sensational article was taken advantage of by a pharmaceutic firm for free advertising of a nostrum, based on a similar formula; a number of physicians previously unknown brought themselves into newspaper prominence with naive statements regarding their ability in the use of the method and with reports of their success; a host of "sob-writers" and sisters of the pen, whose work is tested by their ability to wring anguish from sympathetic hearts, filled columns of the daily press and magazines with pseudoscientific rubbish.

And now, when this sensation has about died out, we are supplied with another. This one is furnished by Mr. Vance Thompson, playwright and novelist; the medium is the *Cosmopolitan* magazine. In an editor's note the article describing this new method of eliminating the pains of labor is introduced as follows:

> The all-absorbing events of the last days of July prevented the spread of the most joyful message ever sent from the scientist's laboratory to woman. It was that henceforth she will bear children not in pain and terror but in gladness. Paris knew of it; the French Academy of Medicine had accepted it, but it got no further. Mr. Thompson was then in the city and to him has fallen the wonderful opportunity of carrying the good news to the men and women of America. Here it is.
>
> Attention must be called to the fact that the practice here described has nothing to do with the morphin-scopolamin treatment originating some years ago in Freiburg and which recently has had some measure of exploitation under the popular name of "twilight sleep." This requires special and very expert care on the part of the physician, and has the further disadvantage of drugging the patient into a state of partial insensibility. It can be administered properly only in hospitals, and its use in general practice should, and probably will, be forbidden by law. But detoxicated morphin, without the slightest danger to the mother, causes neither check nor delay, does not interfere with the necessary rhythmic muscular contractions, and makes painless childbirth a scientific certainty.

As a composition, Mr. Thompson's article is fairly comparable with that of the two ladies who reintroduced "twilight sleep" to American women; but for sentimental rot, for pseudoscientific rubbish, and for downright "sob-writing" Mr. Vance Thompson must be given the palm.

As to the facts, in one place it is stated:

> I do not write of this discovery as being in an experimental stage. It has been accepted by the French Academy of Medicine — the date was the third week in July. Surgeons, gynecologists, chemists, doctors of all degrees have examined, tested, approved. For once scientific men have been unanimous.

There is no excuse for such false statements; even Mr. Thompson could easily have learned the truth.

What are the facts? What is this "detoxicated morphin" which, we are told, eliminates the pains of childbirth? Last July, Ribemont-Dessaignes reported to the Academy of Medicine of Paris a number of cases of childbirth in which he had used, for the relief of pain, a preparation "discovered" by a chemist named Paulin. The nature of the preparation was not disclosed to the academy. September 1, presumably as a result of the suggestion of Paulin, a request came to the academy from the Minister of War asking the opinion of the academy as to the advisability of using this remedy, presented under the name "Tocanalgine" and "Antalgine," in military hospitals as a substitute for morphin. By unanimous vote the academy declared that, the formula and composition of these medicines being unknown, it could give no opinion. Since it was stated, however, that the new drug was produced by the action of enzymes on morphin, the academy appointed a committee to investigate oxydimorphin, a chemical substance which it was known could be produced by the action of enzymes on morphin. Under the direction of the committee, two chemists examined samples of the new preparation obtained directly from the discoverer. The examination showed that these samples were variable, and that they did not contain any oxydimorphin. The only active ingredient found by these chemists was morphin hydrochlorid, and this in quantities varying from 0.05 to 4 per cent. The conclusions of these two chemists were later emphasized by Bertrand who, after careful chemical and biologic tests of samples submitted to him, found that the solid residue was exclusively formed of hydrochlorid of morphin, and that it was fully as toxic and dangerous as morphin, as might be expected; the symptoms of poisoning were exactly the same as those of morphin hydrochlorid, and death occurred after the same interval. A dose of the preparation would give about ½ grain of morphin. In other words, judging from the reports which appeared in the *Journal de pharmacie et de chimie* for November 16, and the

Bulletin de l'Académie de médecine from July 21 to November 17, this so-called "detoxicated morphin" is essentially a solution of morphin in ampules. It will kill just as quickly as morphin, it will relieve pain just as quickly as morphin — because it is morphin. Naturally, the Academy of Medicine of Paris has not accepted the preparation.

We presume it is useless to protest against this shameless exploitation of the fears of prospective mothers of the country. But if magazines must have articles on this subject, let them at least confine themselves to the facts. The article in the *Cosmopolitan* is cruel, sensational and a disgrace even to yellow journalism.

Current Comment

CONGRESS PASSES ANTINARCOTIC BILL

The Harrison bill (H. R. 6282) for the suppression of illicit trade in habit-forming drugs passed the House December 10, after having been before Congress for over two years. The passage of the first and second Harrison bills regulating the manufacture and importation of habit-forming drugs has already been mentioned in The Journal.[1] The third measure, to regulate the interstate sale of opium and cocain preparations, passed both houses last summer, but on account of conflicting amendments was referred to a conference committee. This committee agreed on a report which was adopted by the Senate. When the report came up in the House in the last hours of the recent session, the question of no quorum was unfortunately raised, and the House adjourned without action. The bill consequently went over until the present session. The object of the bill is to restrict the sale of habit-forming drugs to persons desiring them for legitimate purposes. The difficulty has been so to word the measure as to prevent illicit traffic in these drugs without interfering with their legitimate use by physicians and others. As the bill passed the House in June, 1913, it exempted from the operation of the law the dispensing or distribution of habit-forming drugs by physicians, provided the physician in each case was personally attendant on such patient. This exemption was modified in the Senate to require that the physician should have been employed for the particular patient receiving such drug and that the drug should be dispensed in good faith. The bill as agreed on by the conference committee and as finally passed exempts the dispensing or distribution by physicians of drugs containing opium or coca leaves or any of their derivatives, provided the physician keeps a record of all such drugs dispensed or distributed, showing the amount dispensed, the date, the name and the address of the patient. If, however, the physician is in personal attendance on the patient, such a record is unnecessary. Physicians and all others buying drug preparations containing opium or cocain must order them on forms to be issued by the Commission of Internal Revenue. But physicians' prescriptions are specifically exempt. As has been frequently pointed out, it is not in any sense a regulatory measure, and the amount of good that it will or can accomplish will depend entirely on the local police regulations and the methods adopted by states and cities to enforce such regulations. But after years of long, patient effort and many revisions, the bill as passed is probably the best that can be formulated under existing conditions. A complete abstract of the bill will appear in a later issue.

UNAPPRECIATED FEATURES OF THE SCHOOL LUNCH MOVEMENT

School lunches have become established in a large number of our cities, and a defense for their institution is now unnecessary. The maintenance of such a service is no longer defended solely on the basis of the needs of the poorer classes, but is encouraged in ways to avert the criticism that the school lunch leads to pauperizing and to the neglect of maternal responsibility in the home. The unquestioned benefits of a well-chosen warm lunch, usually supplied at the cost of the materials and service, have impressed both teachers and parents so that even the well-to-do commend and approve this latest innovation in the routine of the school day. As a rule, the school lunch room provides better food than the street vender. In most places the foods are chosen by persons trained in the field of dietetics, and the variety of dietary articles offered at one cent a portion is frequently quite impressive. It includes soups, salads, sandwiches, fruits, puddings and other dishes. The New York School Lunch Committee, in cooperation with the Bureau of Welfare of School Children of the Association for Improving the Condition of the Poor, for example, has maintained a service available to over 24,000 children in seventeen public schools situated in districts in which the need of such service is pressing. The registration has run as high as 2,353. In addition to this noon warm lunch service, the committee has operated a special 3-cent warm lunch of milk and crackers at 10 a. m. for anemic, ungraded and crippled classes. It begins to appear that the school lunch movement has engendered certain features which promise to contribute to the general welfare in a direction almost as important as that of the proper nourishment of the body. Educational and social possibilities, at first unforeseen, are being brought to notice.[1] The children of the well-to-do parents and the children of the poor have learned "to sit quietly as one family, to talk pleasantly with each other, to eat their food properly; and many acts of courtesy and generosity have been encouraged." The appeal which the school lunches have made has not infrequently been manifested by mothers who have had their interest in respect to special foods and dietary procedures aroused. Thus the school lunch scheme has fostered educational and social as well as economic purposes.

---

[1] The Harrison Bills and the Nelson Amendment, Medical Economics, The Journal A. M. A., April 18, 1914, p. 1276.

[1] See the reports of leaders in the school lunch movement in the Journal of Home Economics, 1914, vi, 437.

ACTIVITY OF DIGESTIVE FERMENT PREPARATIONS

A recent bulletin of the Bureau of Chemistry emphasizes anew the importance of determining exactly the activity of digestive enzymes and ferments. The great difficulty with these preparations is that they do not keep well, that while active at first, many, after a time, lose their digestive activity. Examination of certain preparations supposed to contain definite enzymes or ferments showed that in reality they contained little, if any, of these agents. Other investigations showed that the manufacturers had employed the proper quantities of pepsin, pancreatin, diastase or similar enzymes, but no attempt had been made to determine their activity. On the other hand, disregarding scientific evidence as to the proper medium or combination of the enzymes, pepsin and trypsin, which tend to negative each other, have been combined; pepsin has been used in alkaline mediums, which destroy its activity, and trypsin has been combined with acid substances not suited to it. Further errors have arisen through overheating enzymes or through issuing them in strong alcoholic solutions, lessening their effectiveness. Manufacturers are warned by the Department of Agriculture, through the Bureau of Chemistry, that combinations claiming to contain digestive enzymes must be active when sold. If preparations tend to deteriorate in a short time, each lot should be dated and not sold after the period when they become inactive. While every manufacturer must be considered innocent until proved guilty and ignorant until proved knowing, it is a matter of knowledge that many manufacturers have marketed their various digestive mixtures with full appreciation of their worthlessness. The Council on Pharmacy and Chemistry nearly seven years ago called attention[1] to the various digestive impossibilities on the market. Practically all of these are still sold. To sell a sick patient a mass of inert material which he believes to be active is not only perpetration of a fraud on the patient, but does gross injury to the physician who prescribes for him and endangers still further the patient's health. It is to be hoped that the government will adopt measures that will prevent the sale of such useless and scientifically absurd combinations.

THE MILK OF DIFFERENT BREEDS OF COWS

Among the various associations of breeders of milk cattle there is a lively competition in medical advertising literature for recognition of the superiority of the type of animal in which each happens to be primarily interested in either a commercial or a scientific way. Many physicians who read the announcements of the different groups of breeders have doubtless asked themselves whether the reputed claims of unlike composition for the milk of the various breeds of cattle concerned are in reality sufficiently distinctive to merit serious recognition from a scientific or practical point of view. It is, of course, widely recognized that types of dairy cattle which give a large amount of milk commonly furnish a product less rich in solids and particularly in the cream components. In this respect the milk from cows of the Jersey and Guernsey types departs noticeably from the Holstein variety; but inasmuch as it is believed, with some justification, that the composition of milk is more or less influenced by the period of lactation and the season of the year — that cows far along in lactation give richer milk than just after calving — one might well assume that incidental factors of this sort may easily counterbalance the inequalities of composition attributable to the differing types of cattle. During the past few years the laboratory of food and drug inspection of the Massachusetts State Board of Health has made extensive analyses of hundreds of samples of milk from Jersey, Guernsey, Ayrshire, Dutch Belt and Holstein cows, as well as from cross-bred or so-called grade cows.[1] The valuable data thus obtained under controlled conditions make it clear that variations in the composition of milk are due primarily to the breed, and to a less extent to the season of the year and the time since calving. The least variable milk constituents are the lactose and the mineral ingredients, both of which are therefore of value in detecting added water. Incidentally the fact is borne out, contrary to popular opinion, that milk obtained in summer under current conditions is, if anything, somewhat inferior in quality to that obtained in winter.[2]

THE SYSTOLIC DISCHARGE OF THE HUMAN HEART

The systolic discharge of blood from the heart and particularly the left ventricle, in man, is a factor of no small importance in the workings of the organism. The ability of the blood to distribute oxygen and thus permit the exhibition of energy under most favorable conditions, depends on its distribution by the cardiac muscle, and its oxygen-carrying capacity as expressed in its content of hemoglobin. The so-called tidal volume of the heart has never been measured with extreme accuracy. By estimations of what they term the "oxygen pulse," that is, the amount of oxygen consumed by the body from the blood of one systolic discharge of the heart, Henderson and Prince[3] have attempted to solve the problem of the magnitude of the discharge. The value of the "oxygen pulse" was calculated by dividing the amount of oxygen absorbed by the individual per minute by the number of heart-beats in the minute. From the data obtained for this factor under a variety of conditions causing various rates of

---

[1] Liquid Combinations Containing Pepsin and Pancreatin, The Journal, Feb. 2, 1907, p. 434. The Digestive Impossibilities, The Journal, Feb. 9, 1907, p. 533.

---

[1] Lythgoe, H. C.: The Composition of Milk as Shown by Analyses of Samples of Known Purity Made by the Massachusetts State Board of Health, Jour. Indust. and Eng. Chem., 1914, vi, 899.

[2] Inasmuch as the statistics may be of interest to physicians we append some of the average figures reported by Lythgoe:

	Solids Per Cent.	Fat Per Cent.	Protein Per Cent.
Jersey	14.7	5.6	3.4
Guernsey	14.6	5.2	3.7
Ayrshire	12.6	4.0	3.0
Dutch Belt	12.1	3.5	2.9
Holstein	11.7	3.4	2.9
Herd milk	12.8	4.0	3.3

[3] Henderson, Y., and Prince, A. L.: The Oxygen Pulse and the Systolic Discharge, Am. Jour. Physiol., 1914, xxxv, 106.

heart-beat, Henderson and Prince infer that the systolic discharge of the left ventricle of a well-developed man working hard and with a pulse-rate of 140 per minute is not less than 100 c.c. (3⅓ ounces) of blood. At slow rates of the heart-beat the systolic discharge is probably 150 c.c. (5 ounces) or more. In men of poor physique it is believed to be probably not more than two-thirds as much. The tidal volume of the whole human heart, that is, its change in size during the complete cardiac cycle, might accordingly amount to 400 or even 500 c.c. (16½ ounces). Such figures are considerably larger than those suggested by previous workers and are about twice as large as the values adopted in some of the current writings. The question promptly suggests itself whether the pericardial sac is actually large enough to allow the heart to make strokes of the magnitude here indicated. Henderson and Prince[2] have made direct measurements of the pericardial capacity in man. Their figures vary quite widely, as might be expected, with the size and general physique of the individual, and range from about 350 to 700 c.c. (23 ounces). A comparison of the pericardial volumes and the maximum possible systolic discharges permitted by them show that the pericardial sac in man is large enough to allow a systolic discharge considerably greater than it may be reasonably supposed that the heart will ever make. It may interest the members of the Association to know that the investigations here reviewed were carried out in the laboratories of the Yale Medical School, with the aid of a grant from the Committee on Scientific Research of the American Medical Association.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

ALABAMA

Personal.—The house of Dr. Henry A. Darby, Athens, was destroyed by fire, December 3.——Major Henry A. Page, M.C., U. S. Army, has been appointed inspector-instructor in the medical department of the National Guard of Alabama and of five other states.

Tuberculosis Sanatorium Incorporated.—The Mobile City and County Sanatorium Company filed incorporation papers, December 3, the object being stated as the operation of a sanatorium or open-air camp in Mobile County for the treatment of tuberculosis. The organization has no capital stock, and the trustees incorporated are: Drs. Daniel T. McCall and Harry T. Inge, and Messrs. A. D. Block, Joseph D. Andrews and R. L. Waddle.

Extension of Mine-Rescue Station at Birmingham.—An extension of the mine-rescue station is needed at Birmingham, according to the report of Director Holmes of the Bureau of Mines, and recommendation to that effect has been made by the director in his annual report. He also recommends that living quarters be provided for the foreman in charge of the station in order that he may be on duty day and night. Birmingham is situated in a large and important mining district.

CONNECTICUT

Personal.—Dr. Simon R. Klein, formerly professor of histology and embryology in Fordham University School of Medicine, New York City, has been appointed pathologist of the Norwich State Hospital for the Insane.

GEORGIA

Personal.—Dr. William L. Funkhouser, Rome, has been elected medical director of the Cherokee Life Insurance Company, succeeding Dr. William W. Mangum, deceased.——Dr. Herbert E. Truax, Atlanta, has started for France for duty with the Red Cross.——Dr. R. S. O'Neal, Bronwood, has been appointed chairman of the Health Board of Terrell County.

Decrease in Infectious Diseases in Atlanta Attributed to School Inspection.—Dr. Willard E. Quillian, president of the Atlanta Board of Health, in a recent lecture, stated that there had been a notable improvement in the general health of the city through the suppression of infectious diseases. One year ago there were 350 diphtheria signs posted in Atlanta. At present there is only one. One year ago there were many cases of scarlet fever, to-day there are only four, and these are very mild. School inspection, he considered, had been a great aid in locating and checking the progress of disease.

ILLINOIS

Hospital Notes.—Frank M. Elliott, president of the Evanston Hospital Association, after nineteen years of service, has resigned on account of ill health.——The Compton Hospital was reopened December 3. It is now under the management of Dr. Clarence G. Pool.

Aim of State Tuberculosis Association.—The Illinois State Association for the Prevention of Tuberculosis and the other antituberculosis associations of the state are endeavoring this year to realize sufficient funds from the sale of Red Cross seals to pay for the services of a nurse in each community in the state.

Personal.—Dr. William P. Sherman, Aurora, was operated on for appendicitis, December 9.——Dr. J. Lenne Aleshire, Plainville, was painfully injured in a collision between his automobile and a street car in Quincy, December 4.——Dr. Albert N. Mueller has been appointed city physician of Rock Island, vice Dr. George G. Craig, resigned.

Unpaid State Health Board Recommended.—The Legislative Efficiency Committee, in its report on the administrative system of Illinois which appeared December 7, makes the following recommendations: The reorganization of the various health agencies into a state health department to be under the direction of a salaried health commissioner; an unpaid state health board of five officers to be appointed by the governor; the state health department to have supervision over the examination and licensing of physicians, pharmacists, dentists and nurses, and the regulation of those organizations which carry on other professions and trades for the protection of public health; a small board or committee to be provided for each profession to arrange for examinations, issue licenses and to revoke same for cause; the clerical and administrative work in connection with such examinations to be handled through one office and the action of the examining boards in revoking licenses, to be subject to review by the State Board of Health. The board of barbers' examiners to be abolished and the power of sanitary control over barbers to be exercised by the health department; the law for the collection of vital statistics to be made more effective; the pharmacy law to be revised; the cold storage of food products to be regulated and a state sanitary code to be enacted.

Chicago

Medicine Samples Not to Be Distributed.—The chief of police, on December 8, issued instructions for the arrest of any one distributing sample packages of medicine.

Zones of Quiet.—A resolution indorsing a petition before the city council to establish zones of quiet around hospitals, was adopted at a meeting of the council of the Chicago Medical Society, December 8.

Nurses' Association Needs Funds.—The Visiting Nurses' Association has issued an especial appeal for funds and announces that if the general public does not come to its aid many of its patients among the sick poor of the city will die from lack of nursing care.

Phone Exchange for Physicians.—A special phone exchange for physicians was advocated at a meeting of the council of the Chicago Medical Association, December 8. Drs. Willis O. Nance, Milton H. Mack and Albert W. Seidel were appointed a committee to urge the plan on the city council.

Health Conferences.—In connection with the Public Health Exhib [illegible] the City Club [illegible] conferences have been

---

2. Henderson, Y. and Prince, A. L.: The Systolic Discharge and the Pericardial Volume, Am. Jour. Physiol., 1914, xxxv. 116.

held on the following subjects: On December 4, "Food" was the topic for discussion. Prof. A. J. Carlson presided and the speakers were Dr. Carl Alsberg, chief of the Bureau of Chemistry, Washington, D. C.; Prof. John H. Long of Northwestern University and Dr. John L. White of the Chicago Municipal Laboratory. "Environmental Conditions" were considered at the evening session of December 7, and the noon session of December 8. The chairman at the first session was Prof. James H. Tuft, and addresses were made by Prof. C. E. A. Winslow of the New York State Board of Health; Miss Sophonisba Breckenridge of the Chicago School of Civics and Philanthropy, and Chief Sanitary Inspector Charles B. Ball of the Chicago Department of Health. Mr. Oscar F. Nelson, chief of the State Factory Inspection Department, Chicago, was the chairman at the second meeting at which Professor Winslow spoke a second time, and Dr. Alice Hamilton of the United States Bureau of Labor Statistics, delivered an address. The session of December 10 was devoted to "Infant Welfare." Mr. Lucius Teter, president of the Chicago Infant Welfare Society, was chairman, and addresses were made by Dr. Isaac A. Abt, Chicago; Passed Assistant Surgeon J. W. Schereschewsky, U. S. P. H. S., and Dr. Frank S. Churchill, Chicago. The noon meeting of December 12, over which Mr. Allen B. Pond presided, took up the question of "Health Administration," the speakers being Dr. George B. Young, health commissioner of Chicago, and Dr. Henry B. Favill, Chicago.

KANSAS

Personal.—Dr. Leon Matassarin, Wichita, while alighting from a street car recently, fell breaking his left humerus. ——Dr. Noah Hayes, who has practiced in Seneca for more than thirty-five years, has disposed of his practice and will live in Lawrence.

Government Recognizes Kansas Vital Statistics.—As the result of the enforcement of the Kansas Vital Statistics Law passed in 1911, Kansas has been placed among the twenty-four states accepted by the government as authorities on records of vital statistics.

Exceptional Outbreak of Diphtheria Abating.—Dr. John J. Sippy, Topeka, epidemiologist of the board of health, reports that diphtheria, which had run an almost unprecedented course throughout the state during October, is now abating. The outbreak started in the southeastern part of the state, the first cases being reported at Galena and Pittsburg. The progress of the disease could be traced along the railroad lines. At one or two places where medical inspection of schools was not indulged in on account of expense, it was necessary later to close the schools at greater expense. The board of health exhausted its supply of diphtheria antitoxin several times during the outbreak.

MAINE

Personal.—Dr. LeRoi S. Syphers succeeded Dr. Loring S. Lombard, resigned, as a member of the Board of Health of South Portland.——Dr. Edouard M. Marquis, Old Town, has gone to France to offer his services to the American Ambulance in Paris.——Dr. Edwin W. Gehring, Portland, has been appointed a member of the State Board of Health, vice Dr. Charles D. Smith, Portland, resigned.

MARYLAND

Civic Club Formed.—A Physicians' Civic Club has been organized in Baltimore by Dr. William T. Watson, with an initial membership of twenty-five.

Against Vaccine Law.—Believing that the compulsory vaccine law is unjust and drastic, the Washington County commissioners, sitting as a board of health, have adopted a resolution recommending that the health officer and all others in authority discontinue the rigorous enforcement of this law, allowing all to use their own judgment in the matter.

Lectures Before University Medical Society.—Dr. Lewis Gregory Cole of Cornell University delivered two lectures before the University of Maryland Medical Society, December 3, on "Anatomy and Physiology of the Stomach and Duodenal Cap," and on "Negative and Positive Diagnosis of Organic Lesions of the Stomach and Duodenal Cap." In the afternoon Lieut-Col. Champe C. McCulloch, Jr., M.C., U. S. Army, delivered a lecture on "Beri Beri."

To Join State University.—The University of Maryland, the College of Physicians and Surgeons and the Maryland Medical College, with three other institutions of learning were created into a Maryland State University, December 11. St. John's College, at Annapolis, was the only one of seven institutions that did not formally affiliate with the university, but this question will be decided at the annual meeting of their board in January. The affiliation of these institutions was decided on at the last session of the general assembly, when a law to that effect was passed.

Personal.—Dr. Franklin P. Mall, Baltimore, professor of anatomy at Johns Hopkins Medical School, has been appointed head of the new department of embryology of the Carnegie Institution in Washington. It is not likely that Dr. Mall will sever his connection with the Johns Hopkins University to pursue his new work.——Dr. George H. Whipple, a member of the faculty of the Johns Hopkins Medical School, has been appointed a director of the George Williams Hooper Memorial Foundation for Medical Research in the University of California.——Dr. Veader N. Leonard of Baltimore, who left on the first Red Cross expedition, is on duty at a 300-bed war hospital at Paignton, Devonshire, England.

MASSACHUSETTS

Personal.—Drs. Henry M. Chase and Gilbert F. Day have been appointed assistant surgeons to the Peter Bent Brigham Hospital, Boston.——Dr. Francis D. Donoghue, Boston, has been appointed a medical expert to the Industrial Accident Board.

New Health Council.—The governor has nominated the following as the new health council: Prof. W. T. Sedgwick, Massachusetts Institute of Technology of Boston; Drs. Milton J. Rosenau and David Linn Edsall of Harvard Medical School; Prof. George Chandler Whipple, sanitary engineer and secretary of the administrative board of the School for Health Officers; Dr. William J. Gallivan, former chairman of the Boston Bureau of Child Hygiene, and Dr. Joseph E. Lamoureaux, Lowell, a member of the local Contagious Hospital Commission and school committee. This council will cooperate with Dr. Allan J. McLaughlin, the new head of the board.

MICHIGAN

Hospital Sought for Cheboygan.—At a meeting of the medical profession held in Cheboygan, November 24, Dr. Stanislas A. St. Armour and James H. McCall were appointed a committee to confer with the Visiting Nurses' Association as regards establishing a hospital in Cheboygan.

Free Clinic at Lansing.—The Ingham County Nurses' Association has established a free medical clinic at Lansing, which was opened December 4. The Ingham County Medical Society has been asked to give free medical service for this clinic, which has been opened in rooms adjoining those of the Associated Charities in the Prudden Building.

Personal.—Dr. Edgar A. Planck, Union, has been elected a member of the state senate.——Dr. Flemming Carrow, who left the University of Michigan three years ago to combine pleasure, profit and health in the fruit-growing industry of northern Michigan, has made a specialty and success of growing chestnuts on his farm near Traverse City.

MISSISSIPPI

Hospital Notes.—The work on a new hospital at Meridian, which Dr. James H. Rush is about to build, will begin before the end of the month. The building will contain ten private rooms and four wards, in addition to the necessary offices, operating rooms, etc.

Personal.—Dr. John H. Lynn has resigned as house surgeon of the State Charity Hospital, Vicksburg.——Dr. Walter H. Rowan, Jackson, chief sanitary officer of Mississippi, has started for Central America to take charge of a campaign for the International Sanitary Commission. The State Board of Health, at a meeting November 20, adopted resolutions voicing the regret and reluctance with which the board accepted Dr. Rowan's resignation, and bearing testimony to his honesty, competency and fidelity.——Dr. Willis Walley, Richton, has taken up his duties as chief sanitary inspector of the state.

NEW YORK

Health Lectures at Albany.—A series of lectures, under the auspices of the State Department of Health, has been begun at Albany Medical College. The lectures are delivered on Tuesdays at 5 o'clock.

Tuberculosis Hospital Opened.—The Homestead Sanatorium, the Tuberculosis Hospital for Saratoga County, was opened December 5. The site for the hospital was donated to the county by Gen. Horace W. Carpentier in 1902.

Small-Pox in Hospital.—Four cases of small-pox have appeared among the patients of the Metropolitan Life Insurance Company's Hospital at Mt. McGregor, near Glens Falls. Everyone in the hospital and its vicinity has been vaccinated.

Dispensary Needs Funds.—An appeal to the public has been made by the president and board of trustees of the Syracuse Free Dispensary for $5,500 required to meet the expenses of the institution until Oct. 1, 1915. During the last six months 8,723 treatments were given as compared with 6,198 treatments during the same period last year.

Plans for Public Health Education.—The State Department of Health, in extending its work in public health education, has planned, in addition to the pamphlets furnished to the schools, to prepare a considerable number of compact exhibits, consisting of a series of striking charts to be circulated throughout the schools of the state. In order to reach rural districts where the installation of the regular exhibits would be too expensive it has also planned to send out a railroad exhibit car with lectures and moving pictures connected with it, similar to the exhibits being used so successfully in California and Louisiana.

New York City

Personal.—Dr. and Mrs. William A. Griffith, Brooklyn, have sailed for San Juan, P. R.——Dr. and Mrs. Robert F. Weir have sailed for Nassau and Guantanamo, Cuba.

Bill to Abolish Coroner's Office.—The investigation of the coroner's office in this city, which has been conducted for several weeks, is nearing an end. Commissioner Wallenstein, who has been conducting the examination, announces that sufficient evidence has been collected to demonstrate the abuses of the office, and to form a basis for a bill which will be presented before the legislature at the coming session. It is purposed to substitute the system in operation in Boston.

Subway Crowding and the Public Health.—Health Commissioner Goldwater recently sent a letter to the public service commission asking that it take official notice of the overcrowding on the elevated and subway trains since it was his belief that such overcrowding greatly promoted the spread of infection by the "droplet method." To this communication the chairman of the public service commission has made reply showing that the public service commission has expended a large amount of money to prevent transportation congestion, that it has not jurisdiction over health matters, and that it is within the power of the health department to prevent the practices complained of, namely, the coughing and sneezing.

NORTH CAROLINA

New Medical Association Organized.—The Winston-Salem Medical Association was organized recently with an initial membership of nineteen.

County Needs Hospital.—Davidson County is in need of a hospital. The fraternal organizations of Lexington have contributed $5,000 toward the building and stock subscriptions are now being solicited throughout the county.

District Society Meeting.—The Eight District Medical Society held its semi-annual meeting at Winston-Salem, December 1: Dr. Joseph W. Ring, Elkin, was elected president, and Dr. William M. Jones, Jr., Greenboro, was reelected secretary. It was decided to hold the spring meeting of the organization at Elkin.

OKLAHOMA

County Society Organized.—Grant County Medical Society was organized at Medford, November 24, with an initial membership of twelve, and the following officers were elected: president, Dr. Samuel A. Lively, Wakita; vice-president, Dr. Harry A. Stalker, Pond Creek; secretary-treasurer, Dr. Chester H. Lockwood, Medford.

Unprecedented Prevalence of Diphtheria.—According to reports received by Dr. John C. Mahr, Shawnee, state commissioner of health, diphtheria is more prevalent throughout the state now than at any time since Oklahoma was admitted to the Union seven years ago. There is scarcely a county in the state entirely free. Rigid quarantine and general distribution of antitoxin have enabled the authorities to get the situation well in hand, and the outbreak will probably be checked soon.

Personal.—Dr. Thomas J. Jackson, Marsden, who has been seriously ill with septicemia, has recovered.——Dr. John L. Plumbee, Poteau, who fractured his arm and sustained other painful injuries in a runaway accident a short time ago, has recovered.——Dr. Percy A. Smithe, Enid, has sailed to join the Red Cross service in Austria.——Dr. Walter H. McKenzie, Enid, who has been seriously ill, is reported to be improving.——Dr. Surl E. Williams, Hydro, while feeding his team late at night, November 27, fell from the hay loft with a lantern in his hand, setting fire to the hay. The barn was destroyed and the team burned to death, and Dr. Williams suffered a fracture of the hip and several burns.——Dr. William C. Whittenberg, Stillwater, has purchased the Buffalo Park Sanitarium, Pawnee, and the institution will be opened about January 21 for the reception of patients.

OREGON

Personal.—Dr. and Mrs. Walter F. Williamson, Portland, have returned from abroad.——Dr. John Griswold, Helix, is reported to be seriously ill.

Trachoma on the Umatilla Reservation.—It is reported that government physicians find trachoma prevalent among the Indians of the Umatilla reservation, all ages being affected but the young being the greatest sufferers.

New Medical Society.—Klamath County Medical Society, the first medical organization in any county of southern Oregon east of the Cascades, was organized November 14, at Klamath Falls, with an initial membership of twelve. Dr. Lawson L. Truax, Klamath Falls, was elected president; Dr. John L. Harris, Bonanza, vice-president, and Dr. Floyd M. White, Klamath Falls, secretary-treasurer.

PENNSYLVANIA

Small-Pox Epidemic.—Jamestown, a small village near Greenville, has been placed under quarantine by the State Board of Health. Twenty-seven cases of small-pox have been reported.

Outbreak of Diphtheria in Allentown.—An outbreak of diphtheria (upward of fifty cases) in Allentown during the latter part of November, necessitated calling in the aid of the State Health Department. Investigation showed that in this instance the schools were not centers of infection, most cases being those of adults and children under 5. Carelessness in observing the modified quarantine rules was regarded as the cause of the spread.

Alumni Clinic Day at Erie.—The first annual meeting of the Northwestern Pennsylvania Chapter of Jefferson Medical College Association was held at Erie, November 14. During the entire day and evening, scientific and social meetings and clinics were held. A business meeting of the chapter was called for the afternoon at which the permanent organization was effected with the following officers: president, Dr. John W. Wright; vice-president, Dr. Frank A. Walsh; secretary, Dr. Harrison A. Dunn, and treasurer, Dr. Claude Weston Page, all of Erie. The membership of the chapter includes all eligible Jefferson graduates who are residents of the counties of Crawford, Erie, Forest, McKean, Mercer, Venango and Warren.

Personal.—Dr. Robert W. Ramsey, Chambersburg, is reported to be seriously ill at his home.——Dr. Albert C. Lamade, Williamsport, was operated on for appendicitis in the German Hospital, December 1, and is reported to be doing well.——After fifteen years' service as a member and president of the Board of Health of Norristown, Dr. Alfred H. Read resigned December 1, and Dr. Willis R. Roberts was appointed his successor.——Dr. Theodore L. Hazlett, Pittsburgh, has been appointed an assistant surgeon in the third Russian Red Cross Unit to sail for Europe this month.——Dr. Johnston McLanahan, Chambersburg, who has been seriously ill with gastritis, is reported to be convalescent.——Dr. William McKenzie, Conshohocken, was seriously injured in a collision between his automobile and a trolley car, recently.——Dr. Benjamin J. Millard, Mount Carmel, while cranking his automobile, fractured his left hip.

Philadelphia

Cattle Quarantine Still in City.—A new order lifting the foot-and-mouth disease from fifteen different counties, and explaining the conditions under which cattle may be imported was issued December 11, by the state live stock and sanitary commission. Philadelphia County is still under ban.

Schools to Teach Care of Babies.—At the suggestion of the Child Federation, the Board of Public Education has established a course for little mothers in the seventh and eighth grades of the public schools. There are classes of instruction now operating in sixteen and seventeen schools under the Child Federation volunteer corps of teachers, and the latest development is a series of lectures in the Stock Exchange Building by Dr. Howard Childs Carpenter, instructing the teachers.

Discuss Hospital Plans.—Plans for the new Philadelphia General Hospital were discussed at a subscription luncheon given by the City Club to representatives of city councils, the County Medical Society and the Civic Club, December 12. Dr. Richard H. Harte of the department of health and charities outlined the proposed plan for spending one million dollars a year during the next five years for the erection of an entirely new group of buildings on the present site of the Philadelphia Hospital. Addresses were made by Dr. David Riesman, a member of the committee on rehabilitation of the hospital, and Dr. William D. Robinson, president of the County Medical Society.

Personal.—Dr. Thomas McCrae has been made consulting physician to the Girard College.——Dr. William S. Newcomet has been appointed radiotherapist to the Jefferson Hospital. ——Dr. George S. Crampton has been elected attending surgeon to the eye department of the Pennsylvania Hospital, vice Dr. Peter N. K. Schwenk, who resigned November 30, after twenty-three years of service. Formal ceremonies were held in honor of Dr. Schwenk at which he was presented with a silver loving cup by members of his staff and was also given flowers by the social service department and school nurses, and numerous tokens of esteem from other persons connected with the hospital.

SOUTH CAROLINA

Personal.—Dr. W. Thad. Hunt, Townville, is reported to be critically ill with nephritis in the Anderson County Hospital.——Dr. W. R. Bethea, who has been seriously ill with pneumonia at the Florence Infirmary, is reported to be improving.

New Society Organized.—Physicians of Calhoun County met at St. Matthews December 3, and organized the Calhoun County Medical Society electing the following officers: president, Dr. Lucius B. Bates, St. Matthews; vice-president, Dr. Asa P. Trawick, Cameron; secretary-treasurer, Dr. Thomas H. Symmes, Jr., St. Matthews.

Society Indorses Health Officer.—The Greenville County Medical Society adopted resolutions recently indorsing the work of the County Board of Health and of Dr. S. J. Taylor, the county health officer, requesting the county delegation to appropriate at least $3,000 for the work of the board of health for the coming year and appointing a committee of three to meet the county delegation and discuss the health questions involved.

District Physicians Meet.—The annual meeting of the Fourth District Medical Society was held in Seneca, November 24, and the following officers were elected: President, Dr. Joseph S. Stribling, Seneca; vice-president, Dr. Lawrence G. Clayton, Central; treasurer, Dr. James R. Young, Anderson. Easley was selected as the next place of meeting and the date of the meeting was changed from the second Tuesday in November to the fourth Tuesday in September.

VIRGINIA

New Organization of Colored Physicians.—The Hippocratic Medical Academy was organized at Roanoke, November 3, with the following officers: president, Dr. George E. Moore; secretary, Dr. A. W. Harris, Jr.——Magic City Medical Society at Roanoke: president, Dr. S. F. William; secretary, Dr. E. D. Downing.

Alumni Organized.—The Medical Alumni of the University of Virginia met in Richmond, November 11, and organized an alumni association, electing Dr. Hugh H. Young, Baltimore, president; Dr. Richard H. Whitehead, University, Va., vice-president, and Dr. Thomas V. Williamson, Norfolk, secretary-treasurer.

Monument to Confederate Surgeon-General.—The Association of Medical Officers of the Army and Navy of the Confederacy has planned a beautiful memorial to be erected over the grave of Dr. Samuel Preston Moore, Surgeon-General of the Confederate Army, who is buried at Hollywood Cemetery, Richmond. Other associations are cooperating in the erection of this memorial.

Personal.—Dr. James Allison Hodges, Richmond, has been elected president of the North Carolina Society of Richmond. ——Dr. John F. Ragland, Jr., Centralia, recently appointed coroner of Chesterfield County, who has been seriously ill with typhoid fever, is reported to be improving.——Dr. Stonewall J. Gill, Roanoke, underwent an operation at the Lewis-Gale Hospital in that city, November 25.——Dr. Kenneth B. Graves, bacteriologist of the State Board of Health, has been elected city bacteriologist of Richmond.

GENERAL

Conference on Child Labor.—The National Child Labor Committee has called a conference of all interested in the protection of children to meet in Washington, January 5 and 6, to emphasize the need of a federal child labor law and to discuss the question whether or not the federal government should intervene to prevent the conditions of child labor now prevailing in twenty-one states of the Union, where the employment of children under 14 years of age in mills and canneries is legal.

Fenger Memorial Fund.—The Directors of the Fenger Memorial Fund announce that $600 has been set aside for medical investigation in 1915. The money will be used to pay all or part of the salary of a worker, the work to be done under direction in an established institution, which will furnish the necessary facilities and supplies free of cost. It is desirable that the work undertaken should have a direct clinical bearing. Applications giving full particulars should be sent to Dr. Ludvig Hektoen, 629 South Wood Street, Chicago, before Jan. 15, 1915.

Sanitarians Elect Officers.—At the annual meeting of the American Public Health Association held in Jacksonville, Fla., December 1 to 4, the following officers were elected: president, Prof. William T. Sedgwick, Boston; vice-presidents, Drs. Charles J. C. O. Hastings, Toronto, Ont.; Juan Guiteras, Havana, Cuba, and Charles E. Terry, Jacksonville, Fla.; members of executive committee: Surgs. J. F. Anderson, U. S. P. H. S.; John H. Landis, Cincinnati, and Alfredo Dominguez, Havana, Cuba; secretary, Dr. S. M. Gunn, New York City, and treasurer, Dr. Lee K. Frankel, New York City. Honorary membership was conferred on Dr. Eduardo Liceaga, for many years president of the Bureau of Health of the City of Mexico. Rochester, N. Y., was selected as the place of meeting for 1915.

Hookworm Campaign in the Canal Zone.—The International Health Commission of the Rockefeller Foundation has established laboratory stations for the diagnosis and treatment of hookworm at Panama, La Chorrera and Bocas del Toro. The work was organized by Dr. L. W. Hackett of the commission, and according to the *Canal Record*, October 28, out of the first thousand men, women and children reporting at the La Chorrera laboratory more than 700 were found to be harboring hookworm. An effort is being made to induce every inhabitant of this village of 4,000 to submit to examination for hookworm, and circulars in simple language have been distributed and house-to-house visits and investigations have been made. Treatment is free, but not compulsory, although the work is carried on at the request and with the cooperation of the Panama government, and pressure may be brought to bear to make the campaign a thorough one. The establishment of laboratories in Panama is in pursuance of the plan of the International Health Commission for a world-wide campaign of health work in countries requesting the cooperation of the commission. Panama was one of the first countries to invite assistance. Great Britain has already solicited cooperation in behalf of her tropical possessions and a French and Dutch colonial service and an oriental service are also under consideration.

WAR NOTES

Dr. Crile Takes Charge of Division in American Ambulance at Paris.—Dr. DuBouchet, in charge of the American Ambulance at Neuilly, has placed at the disposal of Dr. G. W. Crile one division of the hospital, consisting of 150 beds. Other surgeons and nurses will also go from the Lakeside Hospital, Cleveland. The party, which will sail December 30, includes also Dr. Samuel J. Ledbetter, resident surgeon of the Lakeside Hospital; Miss Agatha Hodgins, chief anesthetist, and Miss Iva Davidson, operating-room nurse.

American Ambulance Surgeons Daring.—The American Ambulance Corps of Paris has done much daring work at the front, but so far there has been not a single casualty among the staff, although the life-saving work has been carried on close to the firing line. The British Ambulance Corps has not been so fortunate, as one ambulance near an American Ambulance car, was struck by a shell and demolished, its entire crew being killed or wounded.

Red Cross Work Changes.—The American National Red Cross, at its tenth annual meeting in Washington, December

9, readjusted its European war work. Hereafter, the society will not solicit contributions for non-combatants, but will limit its solicitations to funds for relieving the sick and wounded in the armies at war. It will transmit, however, non-combatants' relief funds to the European Red Cross organizations when the donor designates the country to which the funds are to be sent.

Aid for the Austrian Red Cross.—Dr. Adam P. Leighton informs us of the receipt of a letter from Dr. Oskar Frankl, editor of the *Gynäkologische Rundschau* of Vienna, regarding the work of the Austrian Red Cross. Dr. Frankl states that doctors have given up their accustomed clinical work and are now military surgeons in service of the Fatherland. As with other countries, the Red Cross is in need of funds. Anyone desiring to contribute for this cause may send their contributions direct to Dr. A. P. Leighton, 192 State Street, Portland, Maine, or Oskar Frankl, Franz Josefs-Kai 17, Wien, I., Austria.

More Clothing and Supplies Sent to Europe.—The American Red Cross shipped to Europe on December 13, 401 cases of hospital garments, hospital supplies, blankets, shawls and clothing for the women and children of the war zone.——To France were sent 89 cases of hospital garments, women's and children's, 9 cases of absorbent cotton, several cases of iodin and antiseptic tablets.——To the German Red Cross were sent 71 boxes containing hospital garments, women's and children's clothing, hospital linen and absorbent cotton and bandages.——To the Austro-Hungarian Red Cross were sent 71 cases of hospital garments and clothing for women and children, and 20 bales of absorbent cotton.——To Rotterdam, there were sent for the use of Belgian refugees in Holland, 94 cases of clothing for men, women and children, overcoats, 3,000 blankets and 1,400 shawls, and 65 cases containing nearly 4,000 blankets for the Belgian Relief Committee for Belgium.

Aid to Belgian Physicians and Surgeons.—An appeal made by Sir Rickman J. Godlee of London, chairman of the committee organized in Great Britain in aid of Belgian physicians and surgeons, has resulted in the organization of an American committee which will accept subscriptions in money and surgical or pharmaceutical supplies and distribute them to the best of their ability among the Belgian sufferers. The appeal is accompanied by a contribution by Prof. C. Jacobs of the University of Brussels on "The Position of Belgian Doctors and Pharmacists" and a letter by Sir Gilbert Parker to the Chicago *Tribune*, both of which explain most clearly and vividly the needs of the Belgians.——Dr. Frank F. Simpson, 7048 Jenkins Arcade Building, Pittsburgh, has consented to act as treasurer to the American Relief Committee which consists of Drs. William L. Rodman, Philadelphia; Charles H. Mayo, Rochester, Minn.; John M. T. Finney, Baltimore; George H. Simmons, Chicago; Thomas L. Stedman, New York City; Edward W. Taylor, Boston; Franklin H. Martin, Chicago, and Howard Canning Taylor, New York. Contributions should be sent to the treasurer, Dr. F. F. Simpson.

Work in American Ambulance at Paris.—Dr. Blake, in a letter to an American correspondent states:

> "In view of the great number of surgeons who are applying and who are coming over, I think it would be wise for you to give out a statement to be published throughout the medical press that the Ambulance of the American Hospital in Paris is in reality a hospital of between four and five hundred beds, situated in the environs of Paris at Neuilly, that the staff at present is full, and that only from time to time new men will be needed to fill the vacancies by men leaving. On account of the fact that nearly all the patients are French, and that histories of the cases in French are required by the government, it is highly desirable that applicants should be able to speak French.
>
> Further, that extensions to the work of the Hospital carried out in other places than the neighborhood of Paris for the immediate present, are being manned by complete units leaving America as such, and consequently their personnel is to be recruited before leaving.
>
> Further, in order that applicants may get information more readily, Dr. Gibson and yourself have been requested by the Staff of the American Ambulance to act as a Committee to whom applications should be made."

In accordance with the above request made in a letter from Dr. Joseph A. Blake to Dr. Hugh Auchincloss, dated Paris, Nov. 14, 1914, applications for service of any kind—doctor, nurse, orderly, ambulance driver—in the American Ambulance or its units will be received by Dr. Charles L. Gibson and Dr. Hugh Auchincloss, acting as a committee appointed by the medical board of the American Ambulance. All applications should be made out so as to cover fully, and in detail, all the information requested in the application form, which Dr. Hugh Auchincloss, 178 East Seventieth Street, New York City, will send to any one requesting it. Notices will then be sent directly to any applicant when, on hearing from the American Ambulance in Paris, it may be deemed by the committee that his or her services may be made use of. It should be remembered by all applicants that a passport is an absolute essential, if going abroad, and that the new regulations for securing one are much more stringent than formerly, and that a new form of application blank has been adopted by the government within the past month.

LONDON LETTER

London, Nov. 27, 1914.

The War

The uniformly septic condition of the wounds which have come under treatment in the hospitals, and the failure of the modern "aseptic" treatment, have caused a proposal to revert to the old antiseptic treatment. The latter is now in the ascendency. The importance of immediate disinfection of wounds is recognized and, following the example of the French, a small quantity of iodin is being supplied to each man to be used as soon as a wound is inflicted. Every effort is being made to preserve the health of the troops in the field, so far with complete success. We have had no cases whatever of cholera and few of typhoid. Divisional sanitary companies consisting of sanitary inspectors and men of the scavenging class are being prepared to be sent to the front. A sanitary committee which was sent out by the government has reported that nothing could exceed the sanitary accommodation of the actual trenches. With the advent of the frost there are some cases of frost bite, dysentery, rheumatism and pneumonia. It is remarkable that cases of illness are so few, considering that the men have often to stand ankle deep all night in slush. The motor ambulances are proving invaluable in the removal of the wounded from the field of battle, but the conditions of present-day warfare have rendered immediate succor difficult and often impossible. Horse ambulances are pushed forward during an engagement as near the firing line as is consistent with moderate safety, and the wounded are placed in them from the regimental aid posts behind the firing line. In the course of the protracted semisiege-like battles which are characteristic of this war, it is usually only under cover of darkness that it is possible for the wagons to approach the aid posts, and the collection of wounded is accordingly begun at dusk.

Having collected the wounded, the wagons are driven to the headquarters of the field ambulance, which may be two, three, or four miles in the rear; here the patients are fed on hot beef tea, soup, tea, milk or other sustaining food. Their wounds are redressed, if necessary, and operations of urgency undertaken. In some cases it may happen, as at the battle of the Aisne, that the headquarters of the field ambulance are so near to railroads that the wounded can be transferred straight to ambulance trains or to clearing hospitals in which they can await the arrival of such trains. But as a rule this is not the case; there is nearly always a gap of some miles separating the headquarters of the field ambulances and the nearest available point reached by ambulance trains. It is this gap which the motor ambulances are employed to bridge, and most excellently they do it. Before they appeared, all sorts of shifts were necessary. Whenever the troops advance (or retire) the field ambulances are required to advance (or retire) with them. It is essential, therefore, that the field ambulances should retain their patients for as short a time as possible, for it is obvious that they cannot move with the troops if they are encumbered with hundreds (or even scores) of wounded patients. Thus the motor ambulances, working rapidly backward and forward between the railhead and the field ambulances, achieve a double object: they ensure speedier and far more comfortable transit for the wounded to those places where their wounds can best be treated and healed, and they enable the field ambulances to retain their full mobility and so serve most efficiently the needs of the troops among whom further casualties may occur. The motor ambulances run so speedily up and down that the field ambulances are never allowed to get choked up with wounded, even after a big engagement. If the order comes to march before all the wounded have been taken away in the cars, all that is necessary is to send word to the latter that the patients are lying in a certain house or farm and to leave one or two orderlies behind to look after them until the motor ambulance arrives.

Casualties Among Army Surgeons

The heavy casualties among army surgeons continues. The list for the past week is one killed and five wounded.

In the present war their work is very dangerous. To succor the wounded where they fall they must travel long distances up and down a long front, exposing themselves to the enemy's fire. It is now beginning to be realized that the wounded are safer lying where they fall, provided some one will apply the first field dressing. To carry wounded men or allow slightly wounded to walk to the aid posts during an engagement exposes them to the grave risks of additional wounds and means losses among the medical personnel. It is better that wounded men, having received first aid, should lie until darkness enables them to be moved with safety.

Gas Gangrene

An important report has been made to the government on emphysematous gangrene (which, as previously stated, is rife among the wounded) by Sir Anthony Bowlby, consulting surgeon to the forces, and Dr. J. S. Rowlands, a bacteriologist. A bacillus was isolated which, when inoculated into a guinea-pig caused fatal gangrenous cellulitis. Examination of a culture at the Lister Institute by Dr. C. J. Martin and Dr. Arkwright inclined these observers to the view that the organism is identical with one that for some time was confused with that of malignant edema, known as the bacillus of Ghon and Sachs. This organism was originally obtained from a case of gangrene in the human subject. There are ten different organisms that have been isolated from cases of gas gangrene in man, all of which are closely allied and have the common characteristic of being anaerobic spore-bearers. From other cases in the clearing hospitals at the front several more organisms of this group have been isolated and have been sent to the Lister Institute for confirmatory diagnosis. A sample of earth from a trench was also examined. The inoculation of a few drops of water, in which this earth had been shaken up, into a guinea-pig killed the animal in eighteen hours. Post mortem a similar gangrenous cellulitis was found. The animal was also found, like the guinea-pig inoculated from the gangrenous culture, to be infected throughout with a spore-bearing anaerobic organism belonging to the same group. It is reasonable to conclude, therefore, that the gangrene found among our wounded soldiers is directly due to infection introduced at the time of the wound, and this is especially likely to occur if muddy clothing has been carried in by the projectile or if earth has been carried in the explosion. It is solely due to infection from the soil and is in no way related to sloughing phagedena, or so-called "hospital gangrene." The onset is characterized by swelling of the injured part, and the gangrene seems especially liable to occur in connection with that swelling of a limb which is due to extravasation of blood in the subcutaneous tissues and intermuscular planes. It seems that interference with the circulation either by extravasation of blood or by tight bandages has a marked influence. In the early stages the patient complains of severe pain, which is perhaps due to tension, the result of the swelling, but in the later stages the affected area becomes completely numbed and insensitive. The edges of the wound are generally ragged and sloughy, and a considerable quantity of blood-stained serum constantly exudes and soaks the dressings. This discharge emits a characteristic and most offensive odor, which is so marked as to be almost diagnostic. The skin, if not previously discolored by extravasated blood, assumes a dark purplish or slate-colored hue. In the vicinity of the wound it changes subsequently to a greener color. The swelling extends coincidently with the change of color, and a few hours later the skin becomes nearly black, and finally forms a black, leathery slough. Beyond the area of discoloration the limb is swollen with gas and fluid exudation, and an emphysematous crackling can be elicited on pressure with the hand. This may spread to a distance of as much as a foot above and below the actually gangrenous area, and so rapid is the extension of the gangrene that the whole of the lower extremity may be completely mortified before the end of the third day after the infliction of the wound. The following practical conclusions are drawn:

1. All tight bandages, and especially those applied at the first field dressing, should be avoided. Shell wounds are so often followed by so much interstitial hemorrhage that the part swells and the bandage rapidly becomes tighter and interferes with the circulation. Consequently, many bandages have to be cut within a few hours of their application.
2. In many cases it is necessary to relieve the tension by incisions and drainage, and the opportunity should be taken to wash the wounds thoroughly with an antiseptic. Hydrogen peroxid is one of the best. Great care should be taken to remove portions of clothing, as these contain the infective agent. Shattered fragments of bone and pieces of shell or gravel should be taken out.
3. Amputation may often be successfully performed through tissues made emphysematous by gas but not yet gangrenous.
4. The group of anaerobes causing gangrene are spore-bearers, and spores (especially of this group of anaerobes) are difficult to kill by any antiseptic solution or even by boiling. Consequently, in order to sterilize instruments and other things that have been infected, other measures are required. These are: destruction of blankets and clothing soaked by the discharge, heating in an autoclave at a temperature of 120 C. (248 F.), or boiling for an hour in a solution of phenol (carbolic acid) 1:20, or compound solution of cresol, 1:10.
5. Where possible it is advisable to isolate patients under treatment in hospitals, and this is all the more necessary on account of the bad smell which is inseparable from the condition.

Effect of the War on the Medical Profession

At the General Medical Council (the body of which controls examinations and registration of physicians) the president, Sir Donald MacAlister, in his address referred to communications which had been received from several licensing authorities as to the propriety of modifying or suspending some of the existing regulations in the case of students whose regular course of study might be interrupted by military service. He said it was the duty of the council to maintain such a standard of proficiency as would guarantee the possession by candidates of the knowledge and skill requisite for the practice of the profession. Multitudes of their professional brethren had nobly offered themselves for service with the troops at home and abroad; many had already laid down their lives in the performance of that humane duty. The toll of war was not yet complete. They must face the certainty that before long the ranks of the profession would be sadly depleted. Ample reserves were necessary to supply the places of those who fell on the field of honor. Those reserves would be constituted by those whom they were *now* admitting to the status and privileges of registered physicians. They would best honor the memory of the fallen and safeguard the welfare of the forces and the people if they did all in their power to secure that the men who entered the profession were as fully and as efficiently trained as their predecessors. The need for efficient physicians in the field and at home was not less urgent than the need for efficient soldiers and sailors. He had felt it his duty to press this consideration on senior students who, though they had nearly completed their curriculum, were ready to forego the prospect of early qualification and to enroll themselves straightway in the combatant forces. It was currently reported that owing to the war the number of the students of all years enrolled for the present medical year was much below the average. If that were true, the risk of a serious shortage in the future supply of physicians would appear to be imminent.

PARIS LETTER

PARIS, Nov. 26, 1914.

School for Cripples

During the four months that the war has lasted, our hospitals have discharged numbers of crippled soldiers. What is going to become of these young men, some scarcely over 20? They cannot be abandoned to public charity. All means should be used to make them capable of practicing a trade. The mayor of Lyons, M. Edouard Herriot, reminds us that for a long time the Scandinavian countries have concerned themselves with the problem of the training of cripples. In 1872 the Danish philanthropist, Hans Knudsen, founded at Copenhagen his celebrated orthopedic policlinic, and institutions of the same kind have been opened at Helsingfors, Stockholm and Christiania. M. Herriot visited some months before the war, the training-school for cripples and victims of industrial accidents founded in Charleroi, Belgium, by the province of Hainaut in 1906 after the passing of the Belgian law on compensation for industrial accidents. The workshops of the school were directed by a physician whose duty it was to find out the suitable trade for each pupil when he enters. One might see, for example, a man who had lost both forearms enabled to make brushes by means of a special apparatus. One of the stumps was fitted with a mass of steel, serving as a hammer, the other with a leather pad furnished with a magnet for placing the nails. The school had its prothesis workshop where the physician's ingenuity was taxed by the most various problems. Seven sections were in regular operation: a school of shoemaking, a school of bookbinding, a school of harnessmaking, a school for the cutting and making of clothes, a school of basketmaking, a school for making matting and a school of bookkeeping. The instruction was both theoretical and practical. The cutting school in particular did most acceptable work. The institution could not supply the demands for work people. The basketmaking section also was overwhelmed with orders. Well-organized canteens nourished cheaply this little community of workers saved from want and idleness. Their intellectual development was the object of the same care as their physiologic reeducation. Since the present war renders some such measure urgent, the city of Lyons, which is particularly rich in scientific and industrial resources, has volunteered to found without delay, the first school for cripples in France.

An Appeal of the French Sanitary League

The object of the Ligue sanitaire française, whose president is Dr. Raphael Blanchard, professor of parasitology and of medical natural history at the Faculté de médecine de Paris, is to disseminate the principles of general hygiene. The league believes that under the present circumstances it has a special urgent task to fulfil. It is well known that after all wars the devastated regions are generally subjected to another scourge, that of epidemics (typhoid fever, choleriform infections, dysentery, etc.). To prevent this new calamity, the league has decided to send out a poster to the 6,000 communes affected by the German invasion indicating the most urgent hygienic precautions; for instance, against careless burial of bodies, pollution of springs and wells, and epidemic diseases with information about how they are spread and how they may be avoided. This notice will be posted in all communes. Moreover, wherever the mayors request it, public conferences will be held and it may be that antiseptics will be distributed free on request. The league appeals to all its friends to aid (1) by subscriptions of money, (2) by gifts of antiseptics, (3) by the loan of automobiles and (4) by any other methods. Donations may be addressed to the Secrétariat général de la Ligue sanitaire française, 72, rue de Rome, Paris.

Sanitary Postal Cards

The families of sick and wounded soldiers have complained very justly that they receive only much delayed and very insufficient information. The minister of war has endeavored to meet this complaint as far as possible. Hospitals have been ordered to furnish lists of names of the sick and wounded to be sent to relatives of patients. Moreover, a sanitary postal card has been devised which is to be sent to the families with the signature of the head physician at the time of the admission of the soldier to the hospital and thereafter each week as long as the patient remains. Unfortunately, the heads of too many hospitals of the territorial or reserve army are unfamiliar with military discipline and up to the present they have tended to regard these lists as tiresome administrative red tape which could, in any event, be postponed to a convenient season. Very precise and peremptory instructions have just been given by the minister of war so that this duty may no longer be shirked.

BERLIN LETTER

Berlin, Nov. 7, 1914.

Experiences of the Latest Military Surgery

In a hospital in northern France, where the army headquarters are also situated, the Leipsic surgeon, Professor Payr, delivered a lecture a few days ago on the experiences which he had so far had in the present campaign. He said that military surgery has to reckon with an especial difficulty because the injured are pressed on the surgeons in such numbers that the surgeons are not physically capable of meeting the demands on them. The surgeon in the field must, as has always been the principle of our German sanitary service, work as simply and surely as possible. He must dismiss the wounded that he does not keep under his care in such condition that they may be transported further without danger from any possible accident. In this case, the surgeon in the war lacks any self criticism of his results because he loses sight of his patients in the great majority of cases immediately. However, previous experiences have already given some definite guiding principles. Among them belongs, for instance, the principle that surgeons should not operate too early.

VARIOUS KINDS OF WOUNDS

The wounds differ according to the kind of projectile and according to its effect. They concern infantry bullets, shrapnel, pieces of grenade or shells. The modern French infantry bullet consists of comparatively soft materials and is easily deformed. This occasions the hook form in which it is generally found in the wound. Nothing can be said with reference to the shape of pieces of grenade and shells. Something quite new which has been introduced with this war is the flying arrow. With dramatic vivacity Payr described the first experience of our troops with this weapon. Above a column of marching infantry there appeared a hostile aviator. While it was noticed that he was throwing no bombs, a man suddenly cried out, "I am hit." Although surgical examination at first showed only an insignificant wound on the left shoulder, the patient bled to death under the hands of the surgeon. Necropsy showed that the arrow had pierced the upper fossa of the clavicle, the left lung, the diaphragm, the spleen, the thigh and the pelvis, and had made its exit from the body at the knee. The arrow was found in the trousers of the dead man. It was a pointed piece of steel with the strength of a pen holder, the posterior half of which had been hollowed out quadrangularly so that in falling the heavy point was always downward. A number of such arrows hang in a perforated board under the aeroplane from which they can immediately be released by the pressure of the foot of the aviator, so that a certain scattering and volley-like discharge is secured. At an elevation of 1,500 meters (about a mile), from which they are generally thrown they reach the earth with a final velocity of 200 meters per second, which corresponds to the velocity of one of the older rifle balls. In cases like that described, the effect was fatal, but wounds from the aeroplane arrows are rare.

In describing the injuries of tissues and organs, the lecturer showed that the blood-vessels are cut through by the modern infantry bullet with a smooth wound. The number of injuries to blood-vessels in this war is larger than has been anticipated. The muscle swells up after a few seconds until its counterpressure is great enough to hinder the further exit of blood from the open vessel. Moreover, the nerves have no longer time to yield to the infantry bullet but are smoothly cut across. As far as concerns the serious injuries of bone, it has been shown that shot wounds of the joints take a comparatively favorable course as the result of spongy consistency of the bones about the joints, while the long bones with their ivory-like hardness suffer severely at the distances with which we have to reckon with our far-carrying weapon, and are splintered at a distance of from 1,600 to 1,800 meters. In the internal organs the tendency of the bullet to cause rupture comes into account if, like the kidney and bladder, they are filled with fluid. A peculiar phenomenon is wound fright, a condition in which, even with a relatively slight wound, the wounded show a very serious appearance and a small pulse.

Wounds of the head are especially frequent in modern warfare as a result of the extensive employment of protecting trenches. These wounds may be divided into perforating, tangential and furrowed. The perforating wound is the milder one. A man could be shown who had received a shot transversely through the brain but who yet was able to answer any questions, although with some delay. Sometimes in such cases an abscess of the brain occurs in consequence of infection, but it is possible to reach this by operation, and the case is by no means hopeless. On the other hand, the tangential wound in which the bullet has ploughed an open furrow in the skull shows almost without exception a very severe wound which is dangerous on account of splinters of bone and infection. Here energetic operative interference is generally necessary and, if carried out at the right time, affords in many cases, even with deep wounds of the brain, the prospect of complete recovery. Wounds of the neck, in spite of the crowding of important vital organs in a small space, pursued an astonishingly favorable course in the majority of cases. In wounds of the larynx, tracheotomy was often performed at the field hospital on account of the danger of suffocation. Wounds of the thorax permit almost the best prognosis. Smooth penetrating wounds through both lungs were in many cases so little dangerous that the wounded could already be transported after from ten to fourteen days, even if they had coughed up blood for a couple of days. To be sure, in wounds of the heart and its auricles the progress of surgery, which has made it possible in times of peace to suture such wounds, can be applied only exceptionally in time of war. Wounds of the abdomen were characterized by the lecturer as a disputed territory. The South African War afforded the experience in contrast with former views that it is better not to undertake operative treatment on abdominal wounds immediately but to postpone it. Multiple perforations of the intestines pursued a favorable course if the wounded were allowed to remain quiet for a week without eating or drinking.

THE WORK OF MILITARY SURGERY

The entire work of military surgery consists in the first aid to the wounded, the final care of the wound and the after-treatment. The first aid consists chiefly in the stopping of hemorrhage. In reference to this, the lecturer remarked that the ligature of arteries had been found to be especially important in this war. The prevention of infection also belongs to the first aid. Brilliant results have been secured by the small bandage of germ-free gauze which the soldiers themselves apply in the field or which is applied by their comrades. The third task of first aid treatment is preparing the wounded for transportation. Here the strong cars introduced into the sanitary service do excellent work. The wounded man must be dismissed in such a condition that the surgeon is convinced that no further accident can happen to him on the journey. Broken bones must be fixed in plaster or with splints. The surgeon must in such cases often improvise his apparatus. Very good splints can be made from the limbs of trees and be covered with straw when no other material is at hand. In the final treatment of the wound, the principle has been adopted not to operate too hastily so that the aseptic healing which has already begun may not be interrupted. No importance is attributed in general to the removal of the bullet from the body unless it is necessary.

The shrapnel bullet often carries pieces of clothing into the depths of the wounds on account of the slight force with which it reaches its mark. In from 70 to 75 per cent. of cases, according to the experience in this war, shrapnel wounds resulted in suppuration. Also pieces of grenades with their ragged edges often carry foreign bodies into the flesh. Among the complications which may result, especially in artillery wounds, is the not very rare occurrence of tetanus. The attempt has been made to prevent this by the injection of tetanus serum. Also the injection of tetanus serum into the spinal canal, the nerve centers and the circulation has given successful results in the treatment of developed cases of this fearful disease. As a rule, the simple wounds of the soft parts by infantry bullets pursued a favorable course. In many cases those who had been struck by these bullets were fit for service in the field a week later. Wounds of the joint with infantry weapons pursue a favorable course if splints are applied at the right time. Wounds of the long bones are often much more serious from the distances with which we are concerned generally in this war. They are the crucial cases of our hospitals. It has been shown that delay in operation in these cases is often undesirable, but that an immediate free opening of the gunshot fracture is the proper treatment. Naturally, surgery of the present day, which has become eminently conservative, no longer takes the stand as shown by the distinguished Baron Larrey, chief surgeon of Napoleon I, who believed that he was giving the best help to the wounded if he amputated the wounded limbs. But it has been shown, on the other hand, that military surgery of the present day, in some rare cases, has probably become too sparing of amputation. Wounds of the skull as well as those of the neck and chest pursue a relatively favorable course, but the furrow-like wounds are dangerous. Bombs from aeroplanes are peculiar in their action. The wounded much oftener show burns from these than from the grenades and the splinters produce an especially sharp dagger-like wound canal. Payr closed with praise of the arrangements for moving the wounded, especially the luxuriously equipped hospital trains.

Berlin, Nov. 16, 1914.

The Number of Casualties

The lists of names published in the *Deutsche medizinische Wochenschrift* show that to date the German army medical corps has lost 287 members. Among them, 94 were killed on the field of battle, 12 have died, 90 have been wounded, 27 taken prisoners and 64 are missing, which probably means that they are prisoners. Undoubtedly the number of actual losses is still greater. The facts naturally become known slowly by the troops and are still more slow in reaching publication. It is especially to be regretted that, on the one hand, so many have fallen in the exercise of their professional work and, on the other hand, that so many physicians have been taken and are being held prisoners.

The Iron Cross for Physicians

In contrast with these sad features of the war, we must note that the number of decorations for gallantry in the field (the Iron Cross of the first and second class) awarded to German physicians is extraordinarily great. As is shown by the official communications, these are given not only in appreciation of exhausting and successful professional work but also as a recognition of bravery in the face of the enemy. Many physicians have for hours tended the wounded in the front ranks during a rain of bullets. Many have taken their charges out of hospitals which were exposed to a shower of the enemy's bullets, and were partly on fire. It is easily understood that many of our colleagues lost their lives in this way.

Death of Weismann

August Weismann, zoologist and biologist, died November 6 after a short illness, at the age of 81. He was one of the most distinguished German naturalists of the present period, and had taken first place among the investigators of the Darwinian theory of evolution. Originally he studied medicine. After passing his state examination, he was for a time an assistant at the medical clinic at Rostock. Then he went to foreign countries for further practical education, and his interest in zoology led him gradually to devote himself exclusively to this field. He became a pupil of Leuckart at Giessen and in 1863 he joined the faculty of Freiburg in zoology and comparative anatomy, and in spite of frequent honorable calls elsewhere he never left this university. Weismann devoted his scientific lifework almost exclusively to the grounding and further development of the theory of the evolution of species, and in this field again he preferably devoted himself to one of the most difficult and disputed biologic problems, that of heredity. Darwin had adopted as a temporary hypothesis for the explanation of the inheritance of peculiarities the theory of pangenesis, which in its basic principles goes back to Hippocrates. This theory teaches that from all parts of an organism material contributions pass into the juices of procreation so that the latter, to a certain extent, consist of a concentrated extract of the former. He assumed in this that a living organism had the power of transmitting to its progeny those peculiarities which it had acquired for the first time in the course of its individual existence. He regarded this as an essential factor in the further development of the characteristics of a species and the formation of new species.

The numerous difficulties which the Darwin theory of heredity had encountered led Weismann to more or less successful researches to remove its defects and particularly to secure comprehensible morphologic ideas of the manner in which the elements passing from the entire organism to the sexual cells are to be regarded as active. One of the most important results of these investigations is the theory developed by Weismann—in conjunction with Jäger, Galton and other investigators—of the continuity of the germ plasm. Whatever one may think of its explanatory value, this theory has been, at any rate, very fruitful and rich in results by the stimulus which it has exerted, not only on biology, but also on pathology, natural philosophy and other sciences.

On the basis of this theory, Weismann reaches an exactly opposite result to that of Darwin with regard to inheritance of acquired characters, since Darwin found no difficulty in assuming the possibility of extensive modification of the germ elements. In contrast with this, Weismann declared that the endogenous structure of the germ plasm, with which the function of heredity is connected, is unchangeable and stable. All those characters which the individual in the course of his life has acquired from external sources—changes of organs, diseases, deformities, etc.—cannot, according to Weismann, be transmitted to the offspring. In numerous publications Weismann expounded his theory, which provoked long discussions in the world of science, lasting even to the present time. He published in 1892 "Das Keimplasma, eine Theorie der Vererbung," and in 1902-1904, "Vorträge über die Deszendenztheorie." Of more popular interest are two inspiring productions "Ueber die Dauer des Lebens" (1882), and "Leben und Tod" (1884)—"Length of Life," and "Life and Death"—in which he sought to demonstrate that the length of life of individuals is the result of natural selection, a phenomenon of adaptation which has been produced by the advantage which it affords for the maintenance of the species.

August Weismann was not only a noted and thorough investigator but, what is not always associated with this, he was an excellent university teacher who enjoyed the highest regard of his hearers because of the wonderful clearness and distinctness of his address.

Marriages

Joseph Augustus Blake, M.D., to Mrs. Katherine Alexander Duer, both of New York City, in Paris, France, November 28.

Leroy Thomas Geer, M.D., Syracuse, N. Y., to Miss Adele May Spencer of Los Angeles, at Auburn, N. Y., November 13.

Leroy Francis Heimberger, M.D., Wei Hei Shien, China, to Miss Louisa Corbett of Chefoo, China, November 26.

Clarence Edward Burt, M.D., to Miss Anne Beatrice McCullough, both of New Bedford, Mass., November 25.

Wilbur Randolph Hurst, M.D., to Miss Gertrude Amy Rosencranz, both of Evansville, Ind., November 11.

William Henry Eason, M.D., Lula, Miss., to Miss Willie Joyner Greer of Potts Camp, Miss., November 5.

Peter Jackson Sherlock, M.D., Lockridge, Ia., to Miss Stella Garbre of Mt. Pleasant, Ia., November 17.

Alfred Townsend Osgood, M.D., to Miss Ethna de Lestere Mackeye, both of New York City, November 24.

Edward Morrison Myers, M.D., Boone, Ia., to Miss Margaret Ross of Frankfort, Ind., November 24.

Jacob Victor Greenebaum, M.D., Cincinnati, to Miss Fannie Frank of Boston, November 22.

Arthur Reeves, M.D., Bladen, Neb., to Miss Flora Wilderman of Pittsburg, Kan., November 9.

John E. O'Neill, M.D., to Miss Catherine Agnes Thuman, both of Baltimore, November 23.

Walter Edward List, M.D., to Miss Beulah Kleespies, both of Cincinnati, November 25.

Deaths

Clinton Wagner, M.D. University of Maryland, Baltimore, 1859; surgeon-in-chief of the Second Division of the Fifth Army Corps of the Army of the Potomac; prime mover in the establishment of several military hospitals, including the first floating hospital on Western waters; founder of the New York Laryngological Society and instrumental in the founding of the American Laryngological Society; first professor of laryngology and rhinology in the New York Post-Graduate Medical School and Hospital; inventor of many surgical instruments and the author of voluminous literature relating to his specialty; died in Geneva, Switzerland, November 25, aged 77 years.

John Walter Grimes, M.D. University of the South, Sewanee, Tenn., 1898; a member of the Medical Association of the State of Alabama; once president of the Talladega County (Ala.) Medical Association; a practitioner of Talladega Springs and surgeon for the Alabama Mineral Division of the Louisville and Nashville System; who moved to Clayton, N. Mex., two years ago on account of tuberculosis; died in that place, November 27, from pulmonary hemorrhage, aged 46.

Euclid Van Zandt, M.D. College of Physicians and Surgeons, Keokuk, Ia., 1878; a pioneer practitioner and for many years county physician of Whatcom County, Wash.; for several years president of the Washington State Medical Association and of the State Board of Medical Examiners; in 1904 appointed superintendent of the State Hospital for the Insane, Fort Steilacoom; died in Bellingham, Wash., November 20, from arteriosclerosis, aged 70.

Darwin Adelbert Stewart, M.D. College of Physicians and Surgeons in the City of New York, 1869; of Winona, Minn.; a member of the Minnesota State Medical Association; in 1902 and 1903 mayor of Winona, Minn.; for ten years coroner of Winona County; for five years city physician, and once president of the school board; local physician for the Chicago, Milwaukee and St. Paul Railway; died in St. Barnabas' Hospital, Minneapolis, November 30, aged 69.

Harry T. Walker, M.D. Keokuk (Ia.) Medical College, 1898; of Dubuque, Ia.; formerly a Fellow of the American Medical Association; a member of the Iowa State Medical Society; a member of the staff of St. Joseph's Mercy Insane Hospital; died in Mercy Hospital, Dubuque, November 30, a few hours after an operation for disease of the kidney, aged 48.

Albert Charles Peale, M.D. University of Pennsylvania, Philadelphia, 1871; for more than thirty years connected with the Smithsonian Institute and the National Museum, Washington; mineralogist and geologist in the government employ in the survey of the territories from 1871 to 1879; and geologist of the U. S. Geological Survey from 1883 to 1898; died in the German Hospital, Philadelphia, December 5, from cerebral hemorrhage, aged 65.

William Terrence Carolin, M.D. Harvard Medical School, 1877; a Fellow of the American Medical Association and formerly a member of the Massachusetts State Board of Health, Lunacy and Charity; died at his home in Lowell, Mass., November 21, aged 62. The active pall-bearers at his funeral were his professional associates in Lowell.

James Sullivan Howe, M.D. Harvard Medical School, 1881; a Fellow of the American Medical Association and American Dermatological Association; professor of dermatology in Tufts College Medical School, Boston; dermatologist to the Boston City Hospital and Boston Dispensary; died at his home in Brookline, Mass., November 22, aged 56.

Benjamin F. Whitmer, M.D. Jefferson Medical College, 1868; formerly a member of the Indiana State Medical Association and for more than thirty-five years a practitioner of Elkhart County; a surgeon in the Federal service during the Civil War; died at his home in Goshen, Ind.; November 22, from cerebral hemorrhage, aged 76.

J. McBride Johnson, M.D. Kentucky School of Medicine, Louisville, 1899; of West Plains, Mo.; a member of the Missouri State Medical Association and a specialist in diseases of the eye, ear, nose and throat; died in a hospital in Springfield, Mo., November 22, from nephritis, aged 42.

Mosheim S. Burgess, M.D. Maryland Medical College, Baltimore, 1907; formerly of Medford, Ore.; died in his office in Wayne, W. Va., November 24, from the effects of a gunshot wound of the head, self-inflicted, it is believed with suicidal intent, aged 34.

Albert Barnes Dorman, M.D. College of Physicians and Surgeons, Boston, Mass., 1892; a member of the Massachusetts Medical Society; a practitioner of Winthrop, Mass., for more than thirty-five years, and for twelve years, chairman of the board of health of that town; died at his home in Winthrop, November 22, aged 59.

William Palmer Melcher, M.D. University of Pennsylvania, Philadelphia, 1876; a Fellow of the American Medical Association; for six years a practitioner of Camden, N. Y.; visiting physician to the Burlington County(N. J.) Hospital; died at his home in Mt. Holly, N. J., November 30, from heart disease, aged 65.

Frederick Enoch Shaw, M.D. Cooper Medical College, San Francisco, 1908; a member of the Medical Society of the State of California; formerly a resident of Haverhill, Mass.; recently elected commissioner of finance of Sacramento, Cal.; died at his home in that city, November 29, from pulmonary hemorrhage, aged 35.

Francis Lester Babcock, M.D. Boston University School of Medicine, 1879; for many years a member of the Dedham (Mass.) Board of Health and for ten years visiting physician to the Norfolk County Home, Dedham; died at his home in East Dedham, Mass., October 27, from cerebral hemorrhage, aged 65.

Samuel Webb Scales, M.D. Vanderbilt University, Nashville, Tenn., 1905; of Starkville, Miss.; surgeon to the John N. Stone Cotton Mills; while crossing the railroad tracks near his home, November 26, in his automobile, was run down by a passenger train and almost instantly killed, aged 34.

William Ernest Walker, M.D. Baltimore College of Dental Surgery, 1889; University Medical College, Richmond, Va., 1900; an Associate Fellow of the American Medical Association and a prominent dentist and oral surgeon of New Orleans; died in the Hotel Dieu in that city, November 21, aged 46.

William Tatum Richmond, M.D. Tulane University, New Orleans, 1882; a Confederate veteran; for many years a practitioner of Manor and Edna, Texas; health officer of Edna and Jackson counties; died at the home of his son in El Paso, Texas, November 22, from heart disease, aged 72.

Warren Morris Babbitt, M.D. New York University, New York City, 1858; assistant surgeon of the Fifty-Fifth Massachusetts Volunteer Infantry and later surgeon of a New York regiment during the Civil War; died at his home in South Braintree, Mass., November 26, from pneumonia, aged 82.

Charles Bailey Simcoe, M.D. Missouri Medical College, St. Louis, 1884; superintendent of the State Institution for Feeble-Minded, Marshall, and later assistant physician at the Nevada State Hospital; died in that institution, November 21, from nephritis, aged 54.

Marshall T. Shively, M.D. Medical College of Ohio, Cincinnati, 1874; a member of the Indiana State Medical Association and a prominent practitioner of Grant County, Ind.; died at his home in Marion, November 23, from cerebral hemorrhage, aged 65.

James Muir Halstead, M.D. Kentucky University, Louisville, 1906; of Ridgway, Colo.; local surgeon for the Denver and Rio Grande System; died in the Mont Rose Hospital, November 14, a few hours after an operation for acute appendicitis, aged 29.

William Wesley Johnson, M.D. University of Pennsylvania, Philadelphia, 1865; of Chester, Pa.; surgeon of U. S. Volunteers during the Civil War; died suddenly while making a professional call in Chester, Pa., October 21, from cerebral hemorrhage, aged 77.

Charles W. Shreve, M.D. University of Maryland, Baltimore, 1858; for many years a practitioner of Dickerson, Md.; died at the home of his son in Washington, D. C., November 24, from the effects of a fracture of the hip three months before, aged 80.

Charles Bertram Powell, M.D. University of Minnesota, Minneapolis, 1894; a Fellow of the American Medical Association and a specialist on diseases of the eye, ear, nose and throat; died at his home in Bemidji, Minn., November 30, aged 43.

Jeptha J. Alford, M.D. Tulane University, New Orleans, 1857; formerly a member of the Louisiana Legislature and a resident of Sunny Hill; one of the oldest residents of Washington Parish; died at the home of his son near Osyka, Miss., November 21.

William Augustine Hewins, M.D. Miami Medical College, Cincinnati, 1878; a Fellow of the American Medical Association; for thirty-five years a practitioner of Chandler, Ind.; died at his home in that place, November 26, from asthma, aged 63.

John Irvine Wiley, M.D. Trinity Medical College, Toronto, Ont., 1889, and gold medalist of his year; a member of the Board of Education of Dresden, Ont.; died at his home in that place, October 15, from pernicious anemia, aged 48.

J. T. Bettis, M.D. Cleveland Homeopathic Medical College, 1869; a veteran of the Civil War; and for more than forty years a practitioner of Livonia, N. Y.; died at his home in that city, November 22, from heart disease, aged 69.

Samuel William Coombs, M.D. Vanderbilt University, Nashville, Tenn., 1885; local surgeon at Bowling Green, Ky., for the Louisville and Nashville System; died at his home November 20, from cerebral hemorrhage, aged 51.

Crawford Johnston, M.D. University of Toronto, Ont., 1907; an early practitioner of Sheridan County, Mont., and a resident of Culbertson; died in the Havre (Mont.) Hospital, November 14, from typhoid fever, aged 32.

Hannibal W. Rand, M.D. University of Vermont, Burlington, 1881; a Fellow of the American Medical Association; health officer of Keene, N. Y.; died in the Mary Fletcher Hospital, Burlington, Vt., November 20, aged 60.

Walter V. Hanscom, M.D. Hahnemann Medical College, Philadelphia, 1890; for sixteen years in charge of a hospital in Rockland, Me.; died at the home of his brother in Haverhill, Mass., November 7, from nephritis, aged 45.

Elton L. Wilson, M.D. Tulane University, New Orleans, 1883; a Fellow of the American Medical Association, and for many years a practitioner of Yell County, Ark.; died at his home in Fowler, Ark., November 26, aged 55.

Thomas Olin Jones, M.D. University of Virginia, Charlottesville, 1875; a member of the Medical Society of Virginia; died at his home in Harrisonburg, Va., November 22, from cerebral hemorrhage, aged 63.

John B. Brierly, M.D. Missouri Medical College, St. Louis, 1888; of Gunn City, Mo.; a member of the Missouri State Medical Association; died in the German Hospital, Kansas City, Mo., November 20, aged 53.

Warren M. Campbell, M.D. Cincinnati College of Medicine and Surgery, 1871; for more than sixty years a practitioner; died at his home in Kansas City, Mo., November 28, aged 87.

Delphius W. Howard, M.D. Hahnemann Medical College, Chicago, 1881; formerly mayor of Independence and Nevada, Mo.; died at his home in Nevada, November 21.

Frederick Seitz, M.D. Jefferson Medical College, 1886; for thirty-eight years a physician and druggist of Philadelphia; died at his home in that city, November 25, from cerebral hemorrhage, aged 63.

William H. Smith, M.D. Western Reserve University, Cleveland, Ohio, 1876; for fifty-eight years a practitioner of Rushville, Ind.; died at his home in that city, November 10, from angina pectoris, aged 80.

John T. Hubel, M.D. Detroit College of Medicine, 1899; examining surgeon to the United States Marine Corps in Detroit; died at his home in that city, November 29, from disease of the lungs, aged 37.

Thaddeus FitzHugh, M.D. Medical College of Virginia, Richmond, 1859; a Confederate veteran; in 1896 appointed postmaster of Kansas City, Kan.; died at his home in that city, November 21, aged 79.

Stephen Clarence Pettit, M.D. Long Island College Hospital, Brooklyn, 1895; died at his home in Brooklyn December 3, from septicemia due to an infected wound received while operating, aged 43.

Louis C. Long, M.D. Northwestern Medical College, St. Joseph, Mo., 1882; for twenty-three years a practitioner of Lincoln, Neb.; died at his home in that city, December 2, from diabetes, aged 57.

Sarah C. Hussey Millen, M.D. College of Physicians and Surgeons, Keokuk, Ia., 1882; of Omaha, Neb.; died in the Nicholas Senn Hospital, Omaha, November 22, from cerebral hemorrhage, aged 59.

Newton Graves, M.D. Western Reserve University, Cleveland, Ohio, 1862; for more than twenty years a practitioner of Stafford; died in the Masonic Home, Utica, N. Y., November 23, aged 86.

J. M. Sheppard, M.D. Baltimore Medical College, 1894; a member of the West Virginia Medical Association; was found frozen to death near his home at Falls Mills, Va., November 21.

Robert McNeilly, M.D. University of Pennsylvania, Philadelphia, 1863; assistant surgeon of Volunteers during the Civil War; died at his home in New York City, November 28, aged 83.

Loren S. Barton Otwell, M.D. Medical College of Ohio, Cincinnati, 1865; a pioneer practitioner of southeastern Kansas; died at his home in Independence, Kan., December 3, aged 87.

Isaac Moore, M.D. St. Louis Medical College, 1870; for many years a practitioner of Alton, Ill.; died in the Deaconess Hospital, St. Louis, November 19, after a surgical operation, aged 67.

William Henry Baldinger, M.D. Jefferson Medical College, 1885; oculist and aurist to the Home for Homeless Children, Galveston, Texas; died recently at his home in Galveston, aged 54.

Ralph H. Augur, M.D. Baltimore Medical College, 1909; a post-graduate worker in John Hopkins Hospital; was found dead in his office in Baltimore, November 27, aged 32.

James Henry Cocke, M.D. Memphis Hospital Medical College, 1900; a member of the Tennessee State Medical Association; died at his home in Moscow, Tenn., November 19.

Michael Richard McGarry, M.D. Dalhousie University, Halifax, N. S., 1908; of Florence, N. S.; died in Harbor View Hospital, North Sydney, N. S., September 23, aged 34.

Welcome Harrison Calfee, M.D. St. Louis Medical College, 1870; Bellevue Hospital Medical College, 1877; of Muskogee, Okla.; died in Big Cabin, Okla., October 21, aged 73.

Stephen H. Gillis, M.D. McGill University, Montreal, 1910; of St. Louis, P. E. I.; died in the Charlottetown, P. E. I. Hospital, September 16, from typhoid fever, aged 29.

Charles R. Crow, M.D. Eclectic College of Physicians and Surgeons, Indianapolis, Ind., 1892; died at his home in Indianapolis, November 27, from neuritis, aged 62.

Frederick W. Kohler, M.D. Jefferson Medical College, 1882; well known as a travel lecturer of Philadelphia; died in the German Hospital in that city, November 27.

J. W. Hogsett, M.D. Medical College of Indiana, Indianapolis, 1875; a veteran of the Civil War; died recently at his home in Lincoln, Kan.

Albert Elliott Wright (license, Michigan, twelve years of practice, 1900) for nearly half a century a resident of Ecorse, Mich.; died at his home, November 28, aged 73.

Willis B. Parks, M.D. Southern Medical College, Atlanta, Ga., 1881; died at his home in Atlanta, November 23, aged 61.

The Propaganda for Reform

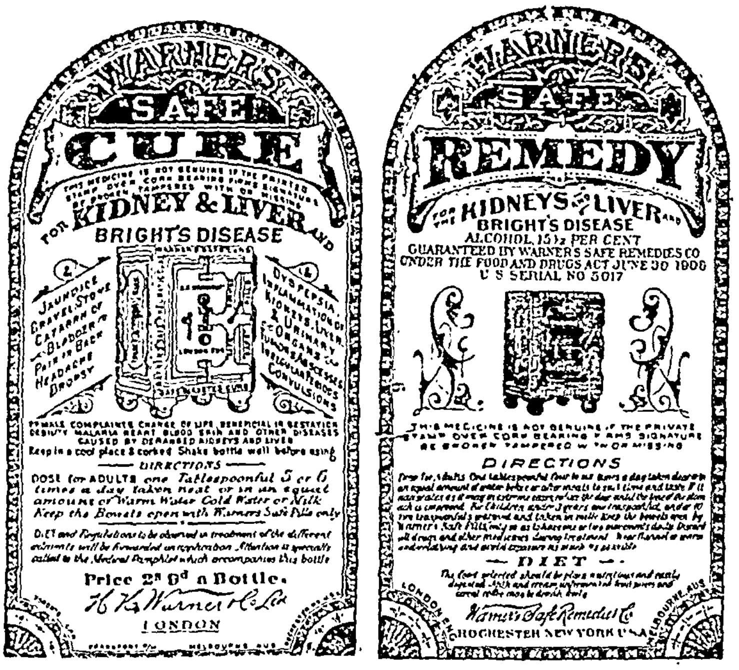
In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

WARNER'S SAFE REMEDY

An Unsafe and Fraudulent Nostrum

"Warner's Safe Remedy for the Kidneys and Liver and Bright's Disease" was sold, not long ago, as "Warner's Safe Cure for Kidney and Liver, Bright's Disease, Urinary Disorders, Female Complaints, General Debility, Malaria and all Diseases caused by Disordered Kidneys and Liver." The company that puts the product on the market was known, until recently, as Warner's Safe Cure Company, Rochester, N. Y. It is now "Warner's Safe Remedies Company." The Warner concern is said to be leased by, and practically a subsidiary company of the New York and Kentucky Company, distillers and wholesale liquor dealers of Rochester, whose business is frankly and openly the manufacture of whiskies. Another subsidiary concern of the New York and Kentucky Company is the Duffy Malt Whiskey Company.

The history of Warner's Safe Remedy is typical of the "patent medicine" business. In the free and easy days, before the public was protected by the Food and Drugs Act, Warner's Safe Cure was advertised extensively — and fraudulently. Efforts were made to impress on the well and the sick the falsehoods that most aches and pains are due to diseased kidneys; that a pain in the back is a sure sign of Bright's disease, and that the only sure cure is the Warner nostrum. The concern went even further in its attempt to frighten people into purchasing Warner's Safe Cure. The advertisements contained what purported to be a sure and simple test for kidney disease. This "test" was led up to by such "scare" claims as:


WARNER'S
SAFE
CURE
This medicine is not genuine if the printed stamp over cork bearing firm's signature be broken tampered with or missing
FOR KIDNEY & LIVER AND
BRIGHT'S DISEASE
Jaundice
Gravel, Stone
Catarrh of Bladder
Pain in Back
Headache
Dropsy
Dyspepsia
Inflammation of Kidneys, Liver, & Urinary Organs
Tumors
Convulsions
Female complaints change of life beneficial in gestation debility malaria heart blood skin and other diseases caused by deranged kidneys and liver
Keep in a cool place & corked Shake bottle well before using
DIRECTIONS
DOSE for ADULTS one Tablespoonful 5 or 6 times a day taken neat or in an equal amount of Warm Water Cold Water or Milk
Keep the Bowels open with Warner's Safe Pills only
Diet and Regulations to be observed in treatment of the different ailments will be forwarded on application. Attention is specially called to the Medical Pamphlet which accompanies this bottle
Price 2s 9d a Bottle.
H. H. Warner & Co. Ltd
LONDON
MELBOURNE AUS
WARNER'S
SAFE
REMEDY
FOR THE KIDNEYS AND LIVER AND
BRIGHT'S DISEASE
ALCOHOL 15½ PER CENT
GUARANTEED BY WARNER'S SAFE REMEDIES CO
UNDER THE FOOD AND DRUGS ACT JUNE 30 1906
U S SERIAL NO 5017
This medicine is not genuine if the private stamp over cork bearing firm's signature be broken tampered with or missing
DIRECTIONS
DIET
Warner's Safe Remedies Co
ROCHESTER NEW YORK U.S.A.
LONDON ENG
MELBOURNE AUS

Reduced facsimiles of the Warner labels as used in the United States (on right) and in the British Isles (on left) after the passage of the Food and Drugs Act. Notice that the "Cure" became a "Remedy" in the United States and the range of diseases for which the stuff is, or was, recommended is much smaller on this side of the Atlantic.

> "At every stroke of the clock a human life goes out. Nearly one-half of all deaths are the result of kidney disease. Nine men and women out of every ten have kidney trouble. If in doubt, try this simple home test":
>
> "Diseased kidneys cause more sickness, suffering and serious complications than any other disease. Thousands of people have kidney trouble and do not know it. If in doubt make this test":
>
> "*Thousands* of men and women have kidney disease and do not know it until it is too late. This simple test will tell":

The "test" by which the susceptible were to be frightened into a belief that they were seriously ill was described thus:

> "Put some morning urine in a glass or bottle; let it stand for twenty-four hours. If then it is milky or cloudy or contains reddish brick-dust sediment, or if particles or germs float about in it, your kidneys are diseased. This is the supreme moment when you should begin to take Warner's Safe Cure *to arrest* all these unnatural conditions, for they are the *unmistakable* symptoms of kidney disease."

They are "unmistakable symptoms" of nothing of the sort. Practically any *normal* urine from a perfectly healthy individual will become more or less cloudy after standing twenty-four hours. "Brick-dust sediment" indicates nothing more serious than concentrated urine and is not an "unmistakable symptom" of "kidney disease." How much mental anguish has been caused by, and how many poor devils have been frightened into purchasing this false and fraudulent nostrum through the villainous suggestion contained in the "test" just quoted there is no means of knowing. That it brought in a golden harvest to the stockholders in Warner's Safe Cure Company, can not be doubted.

With the coming of the Food and Drugs Act, the cruder and more evidently false claims made for this nostrum began slowly to disappear. For some years, however, the lying continued in the newspaper advertising, although certain modifications were made in the labels and cartons. The labels and cartons used in Great Britain, however, continued to bear the same false statements years after the change had been made in the American labels. Such statements as those that follow continued to accompany the trade package of Warner's Safe Cure as sold in Great Britain, long after similar falsehoods had been eliminated from the trade package of the Warner nostrum sold in the United States:

> "Warner's Safe Cure is a purely vegetable preparation . . ."
>
> "It is the only recognized specific."
>
> "Warner's Safe Cure is the most wonderful and beneficent medicine known."
>
> "Backache is the one sure sign of deranged kidneys."

At various times this nostrum has been analyzed and the composition of the product has been described. According to a quotation appearing in the report of the Australian Royal Commission on Secret Drugs, Cures and Foods, the following formula for Warner's "Safe Kidney and Liver Cure" was furnished the German government in accordance with the law:

Extract lycopus virginiana	308	grains
Extract hepatica (herb)	322	grains
Extract gaultheria	7½	grains
Potassium nitrate	39	grains
Alcohol (90 per cent.)	2¼	ounces
Glycerin	10	drams
Water sufficient to make	1	pint

It is reported that as long ago as 1887 the Health Department at *Karlsruhe* issued a warning to the public against the use of Warner's Safe Cure and closed its pronouncement with the statement: "We warn you against buying this useless medicine."

From the formula given above, it will be seen that the essential drugs in the nostrum are alcohol and potassium nitrate. In 1907 the North Dakota Agricultural Experiment Station analyzed the stuff and it, too, found potassium nitrate and alcohol as, also, did the chemists of the British Medical Association in 1909. Still more recently the chemists of the Laboratory of the American Medical Association have examined Warner's Safe Remedy with the following results:

LABORATORY REPORT

One bottle of Warner's Safe Remedy, manufactured by the Warner's Safe Remedies Co., Rochester, N. Y., was submitted to the Chemical Laboratory for examination. The bottle contained a brown murky liquid, having an aromatic flavor, the odor of oil of wintergreen being quite pronounced. The specific gravity of the liquid at 15.6 C. was 1.0653. Qualitative tests demonstrated the presence of potassium, trace of sodium, nitrate, glycerin, alcohol, and extractive matter.

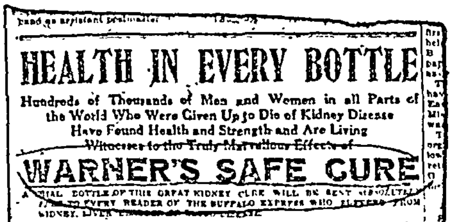
Quantitative estimations yielded the following:

Alcohol (by volume)	14.40 per cent.
Glycerin (by weight)	7.72 per cent.
Pot. nitrate (calculated from 0.68 per cent. potassium)	1.75 per cent.

Each fluid ounce (two tablespoonfuls) contains essentially 4.5 c.c. of 95 per cent. alcohol, 2 c.c. (½ fluid drachm) glycerin and .55 gm. (8½ gr.) potassium nitrate with extractive matter.

Here, then, we have a preparation sold inferentially for the cure of Bright's disease and consisting essentially of alcohol, glycerin and potassium nitrate, with extractives. Alcohol, of course, is contra-indicated in inflammatory diseases of the kidney. Potassium nitrate is a kidney irritant and would tend to aggravate any inflammation that might exist. The label on the bottle of Warner's Safe Remedy declares the presence of 15.5 per cent. alcohol and recommends a dosage of one tablespoonful four to six times a day. The circular wrapped around the bottle recommends "one tablespoonful six or eight times a day." Taken at the maximum dose recommended, one large (pint) bottle of Warner's Safe Remedy would last four days. Such a bottle of Warner's Safe Cure contains an amount of alcohol equivalent to the alcohol in 5 ounces of whiskey. This means that the person suffering from Bright's disease who buys Warner's Safe Remedy and takes it according to directions may get the equivalent of 5 ounces of whiskey every four days. In addition to this he may also be getting a daily dose of 34 grains of potassium nitrate to irritate the kidneys further.

Not only, then, will Warner's Safe Remedy not cure Bright's disease but it may hasten the death of the sufferer who takes it. Those who, suffering from diseases of the kidney, rely on Warner's Safe Remedy, will not only be cruelly defrauded but will, without question, shorten their lives.



HEALTH IN EVERY BOTTLE

Hundreds of Thousands of Men and Women in all Parts of the World Who Were Given Up to Die of Kidney Disease Have Found Health and Strength and Are Living Witnesses to the Truly Marvelous Effects of

WARNER'S SAFE CURE

At every stroke of the clock a human life goes out. Nearly one half of all deaths are the result of kidney disease. Nine men and women out of every ten have kidney trouble. If in doubt TRY THIS SAMPLE HOME TEST.

Cures Kidney Disease

A typical Warner advertisement of a few years ago. Notice the "scare stuff" and the fraudulent "home test."

CYPRIDOL CAPSULES

Report of the Council on Pharmacy and Chemistry

Having voted that Cypridol Capsules be refused recognition, the Council directed that for the information of physicians publication of the following report be authorized.

W. A. Puckner, Secretary.

Cypridol Capsules, sold by E. Fougera & Co., New York, are stated to be "Bottled in the New York Laboratories of Vial, late Rigaud and Chapoteaut, Paris," and to contain, in each capsule, 2 mg. (1/32 grain) mercuric iodid (biniodid of mercury) dissolved in a fatty oil. They are claimed to permit the administration of mercury without danger of salivation—an obvious misrepresentation.[1] Cypridol Capsules are marketed in a way to appeal to the public. If they are once prescribed, the directions on the bottle and the full instructions for the treatment of syphilis by means of Cypridol and by other proprietaries sold by Fougera & Co. is likely to lead the patient to attempt the treatment of his malady on his own accord, and thus probably to forfeit his chances of cure. Cypridol is a vicious example of the "ready-to-take" proprietaries.

Cypridol Capsules are in conflict with the Rules of the Council as follows:

Rule 4: The dosage, price, etc., on the label, and the name "Cypridol" blown in the bottle, all tend to a direct self-prescribing by the public. In addition to the objectionable statements on the bottle itself, the preparation is put up in patent medicine style and is accompanied by a circular giving full directions for the use of this and of other proprietaries for the treatment of syphilis in all of its stages. The circular states that "a 1 per cent. solution of bin-iodide of mercury in an aseptic oil" is "An Improved Specific in the Treatment of Syphilis," and after lauding the virtues of Cypridol, gives full directions for the treatment of syphilis in its various stages by means of Capsules of Cypridol augmented, during periodical cessation of treatment, by "small doses of iodide of strontium (Paraf-Javal's standard solution, thirty grains to the ounce)." Further, the circular expounds the need of "a toning up of the general system" and by means of obsolete theories and obviously untrue assertions recommends "*Chapoteaut's Wine* [another of their proprietary preparations], each ounce of which contains 10 grains of phospho-glycerate of lime. This is a delicious, nutritive tonic. A pint bottle costs $1.00."

Rule 6: Whereas it is evident that Cypridol, depending for its effects on mercuric iodid, the ordinary well-known hydrargyri iodidum rubrum of the U. S. Pharmacopeia, must naturally have the properties of a mercuric compound, unwarranted claims such as the following are made:

> "CYPRIDOL does not render patients anemic. Ptyalism never follows the administration of the capsules or injections. On the contrary, patients rapidly put on flesh and keep well. There are no diarrhoeas or other symptoms of intolerance even when the dose is pushed."

Rule 8: The non-informing name "Cypridol" for a mercuric iodid preparation is bound to lead to its use without consideration of the fact that a potent mercury preparation is being used, requiring a careful adjustment of dosage, a consideration of the needs of the individual case, a correct diagnosis, etc. While the advertising propaganda argues that "physicians recognize the advantage of prescribing this solution of mercuric iodide in an aseptic oil under the name of 'Cypridol,' because it does not betray to the laity the fact that mercury is being used," not only the physician but also the patient has a right to know, and ought to know, the potent character of the remedy which is being administered.

It is recommended that Cypridol be refused recognition and that publication of this report be authorized.

INTESTINAL ANTISEPTIC W-A

Report of the Council on Pharmacy and Chemistry

The Council voted that Intestinal Antiseptic W-A be refused recognition, and that the publication of the following report be authorized.

W. A. Puckner, Secretary.

The Abbott Alkaloidal Company advertises "Intestinal Antiseptic W-A" as

> ". . . A scientifically blended and physiologically adjusted mixture, of the pure sulphocarbolates of calcium, sodium and zinc, grs. 5, with bismuth subsalicylate, gr. 1-4 and aromatics."

---

[1] Physicians who desire to use a solution of mercuric iodid in oil should direct their pharmacist to prepare it according to the method suggested by Lemaire (Repert. pharm., xxi, 97-102, from Chem. Abst., 1909, p. 1444), viz: One gm. of mercuric iodid is dissolved in 50 c.c. sterilized castor oil by warming to about 70 degrees, 3 gm. guaiacol are added and the solution made up to 100 c.c. with sterilized poppy oil. Or according to a later suggestion (Dunning: Proc. Am. Pharm. Assn., 1910, p. 1123): one gm. of mercuric iodid is dissolved in 99 gm. of a mixture of equal parts of sterilized castor and olive oils, by warming on the water-bath.

This formula is in conflict with Rule 1 in that it does not state in what proportion the sulphocarbolates are present.

The name "Intestinal Antiseptic W-A" is in conflict with Rules 4 and 8, since it is therapeutically suggestive.

The preparation is in conflict with Rules 6 and 10, in that exaggerated claims are made for it, no evidence being submitted to prove the superior value of the mixture.

The most serious of these conflicts consists in the exaggerated and misleading therapeutic claims. The advertisements say:

> "This combination has no equal as an antiseptic and inhibitive agent in typhoid fever, diarrhea, dysentery," etc.
>
> "Numerous cleverly devised and scientifically constructed *intestinal* antiseptics have been introduced to the profession, but not one of *them* has ever rivaled for one moment these salts in popularity."
>
> ". . . we are convinced that no small share of the credit for the reduction of the death rate in infantile diarrheas is due to the widespread application of this general method of treatment, associated of course with the calomel clean-out and the *regulation of diet, now* known to be essential."
>
> "But the use of the sulphocarbolates is not restricted to diseases of the alimentary canal, although in the summer diarrheas, gastric fermentation, intestinal indigestion, typhoid fever, dysentery—indeed in all alimentary disturbances—it is the one essential remedy. It is also indicated in practically all infectious diseases."
>
> "Typhoid Fever (in this disease the W-A Intestinal Antiseptic is of great value; used early, with the proper synergistic cleanout, it will often cut short the disease)."

These extreme claims exceed the limits of permissible optimism, unless they are supported by strong dependable evidence. They contrast sharply with the low esteem in which the phenolsulphonates (sulphocarbolates) are generally held. To accept these claims, and to justify encouraging physicians to rely on them, it would be necessary to establish:

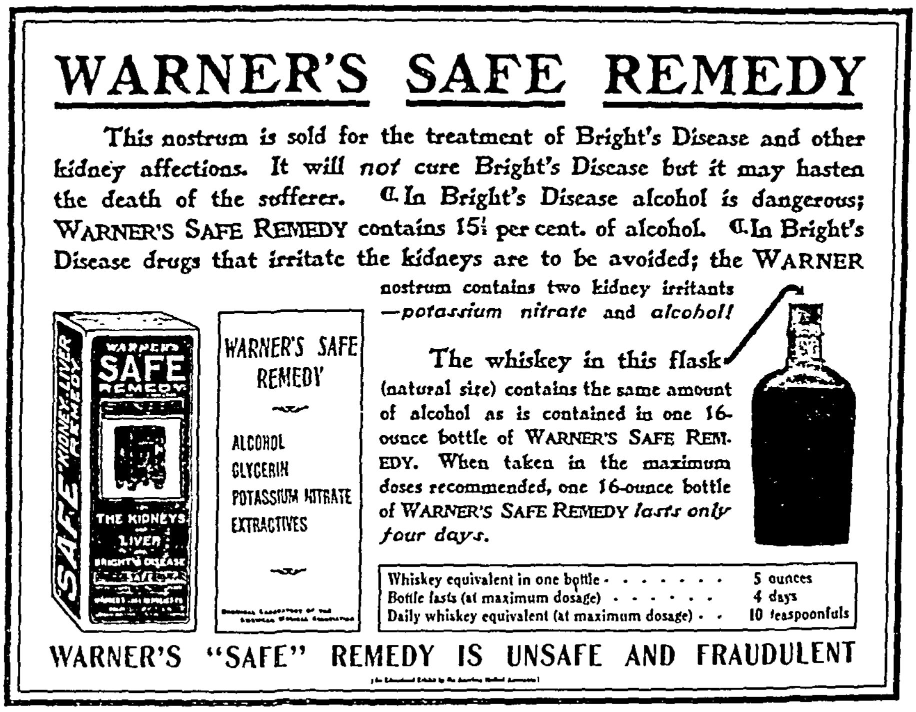
First, that feasible concentrations have a distinct antiseptic action on cultures of intestinal bacteria. This experiment could be easily made, but the claims do not seem to be based on evidence of this kind.

Second, that the preparation actually checks putrefaction in the intestines. There are several methods by which this proof may be attempted; but the claims do not appear to be based on evidence of this kind.

Third, that the preparation actually has a favorable influence on the progress of diseases. This sort of evidence is exposed to so many fallacies that it would have to be gathered very carefully and critically, duly discounting the effect of other treatment; for instance, by comparison with similar cases which do not receive this preparation. This is especially important; and yet we find directions to use this preparation in conjunction with active cathartic treatment, which in itself has considerable influence on the conditions for which this preparation is recommended. No evidence of this kind is presented.

The testimonials contained in the advertisements cannot be considered as serious evidence. None present any indication of accurate record, or proper control of conditions; of the performance of control observations. They are superficial impressions, to which little or no weight can be attached.

It is recommended that Intestinal Antiseptic W-A be considered ineligible for New and Nonofficial Remedies.



WARNER'S SAFE REMEDY

This nostrum is sold for the treatment of Bright's Disease and other kidney affections. It will *not* cure Bright's Disease but it may hasten the death of the sufferer. ¶ In Bright's Disease alcohol is dangerous; Warner's Safe Remedy contains 15½ per cent. of alcohol. ¶ In Bright's Disease drugs that irritate the kidneys are to be avoided; the Warner nostrum contains two kidney irritants —*potassium nitrate* and *alcohol!*

The whiskey in this flask (natural size) contains the same amount of alcohol as is contained in one 16-ounce bottle of Warner's Safe Remedy. When taken in the maximum doses recommended, one 16-ounce bottle of Warner's Safe Remedy *lasts only four days.*

Whiskey equivalent in one bottle	5 ounces
Bottle lasts (at maximum dosage)	4 days
Daily whiskey equivalent (at maximum dosage) . .	10 teaspoonfuls

WARNER'S "SAFE" REMEDY IS UNSAFE AND FRAUDULENT

Miniature reproduction of an educational poster prepared by the Propaganda for Reform Department. Twenty-eight different posters already prepared, illustrate various phases of the evils of nostrums and quackery. In the original the placards measure 22 by 28 inches. A catalog of the complete set will be sent on request.

Correspondence

Justice and Science

To the Editor:—In the evolution of medical education, which is going on so rapidly at the present time, a condition has arisen which is anomalous and certainly, from more than one point of view, fundamentally wrong. The proposition is being brought forward, and in some instances is being carried out, to have full-time teachers of medicine and surgery and their allied branches, on salaries of ten thousand dollars or more per year. With the question of the wisdom of full-time professorships in the practical departments of medicine, a matter which is still under debate, I do not wish to deal, but I do want, as a clinician, to speak a word about the injustice which this plan works to the men who are equally deserving of large salaries, not only because of their ability, but because they have deliberately devoted themselves to their special departments of medical science as teachers and investigators, and, in order to be *facile princeps* in their respective departments, have deliberately narrowed their opportunities of making a living. I refer to professors of the so-called fundamental branches in medicine, viz.: chemistry, anatomy, physiology, bacteriology and pathology, who are receiving as a maximum salary four to five thousand dollars per year. It would seem, now that it is so universally agreed that these men shall give their whole time to teaching and investigation, that the next effort should be to see that funds are raised for their generous support and that the collecting of money with which to pay salaries to full-time professors in clinical departments should wait until those men who are already giving their full time are adequately provided for.

It may be said that a clinician cannot be obtained for a full-time professorship for less than ten thousand dollars a year and that a teacher of one of the fundamental branches of medicine can be gotten for five thousand dollars, and that, therefore, the proposition is purely a commercial one, based upon the law of supply and demand; but is this the best way to advance medical science or medical teaching, and is it just? Shall it be said to a young man who is starting on his career, "If you go into medical science and do good work, for a number of years you will receive a mere pittance as an assistant and, when you reach the ultimate goal, a professorship, you will never get more than five thousand dollars yearly, whereas, if you go into clinical medicine or surgery you will before long be self-supporting from your practice, and when you become a professor you will get ten thousand dollars annually"?

For the advance of science three things are necessary. First, devotion to its cause. Second, a mind free from the unavoidable annoyances of a meager salary, and, last, a consciousness that the world in general, and medical men in particular, are enthusiastic and generous supporters of all of those who unselfishly use their great abilities for the good of science rather than for their personal gain. Do the men who control large sums of money, and do the men who control scientific institutions really intend to make such invidious distinctions between able men in clinical medicine and surgery on the one hand and equally able men in the fundamental medical sciences on the other, as to say to a clinician, "We will pay you ten thousand dollars," and to another man, "As you are a physiological chemist or pathologist, we will pay you only five thousand dollars"?

Both men are at liberty at any time to resign their professorships. The clinician on resigning is practically guaranteed a greater income by reason of the title which he has borne in a great institution. The other man, having devoted himself solely to a non-clinical scientific pursuit, has no means of gaining a livelihood except by finding another professorship at a salary no larger than that which he has given up.

In other words, while we discuss the abstract problem of full-time clinical professors, had we not better devote our energies in properly providing for the full-time men already engaged? These are they who not only set an example to the student of unselfish devotion and who perform their task for the work's sake, but who also in most instances lay the foundation upon which the clinician can build. Taking it all in all, is it not a fact that the average investigator and teacher, possessing the genius of original research, is deserving of reward at the hands of colleges and universities at least to the same extent as any other appointee?

H. A. Hare, M.D., Philadelphia.

Importance of Geriatrics

To the Editor:—Canstatt (Krankheiten des höheren Alters und ihre Heilung, Erlangen, 1839) says:

> "Medical literature, especially of the present day, abounds in works on diseases of women and children. The pathology of certain organs and of certain classes of diseases receives exceptional attention. Bare and neglected in comparison with these lovingly fostered medical studies is a field which, if it were cultivated, promises fruitful returns." (Free translation.)

Charcot, in his "Clinical Lectures on the Diseases of the Aged" (Hunt's American translation, 1881), says:

> "The importance of a special study of the diseases of old age cannot be contested at this day. We have come to recognize in reality that, if the pathology of childhood countenances clinical considerations of a special kind, and if it is indispensable that it be known from a practical point of view, then also senile pathology presents its difficulties, which cannot be surmounted except by long experience and a profound acquaintance with its peculiar characteristics."
>
> "The progress of age establishes a wide difference in pathological phenomena, by virtue of its physiological modifications. . . . There do exist special diseases of old age which, in part at least, arise from the general modifications which the economy has undergone. . . . I think enough has been advanced to convince you that a *senile* pathology does exist."

Seidel in his monograph on "Diseases of Old Age" (Wood's monographs, 1890) says:

> "Mistakes are made daily in the treatment of the aged, and the normal mortality of advanced life is considerably increased as a consequence of the hitherto neglected study of the anatomical and physiological peculiarities of the senile organism."

Schwalbe in his "Lehrbuch der Greisenkrankheiten," Stuttgart, 1909, referring to the selection from Canstatt quoted above, says:

> "These still apply in full force, and the fact is more noticeable to-day than it was in the fourth decade of the last century."

The subject is taken up seriously in Germany and especially in France, where three text-books have appeared within a few years. Saundby (Old Age, Its Care and Treatment, London, 1913) quotes fifty-one dated works. Of these, twenty-one are English but only four are of the present century. Of nineteen French works, sixteen are of the present century, and of eleven German works eight appeared since 1900. Not a single American author is quoted, and of 446 authors quoted by Schwalbe there are only six Americans, and three of these are really German physicians. In 1911 five theses on senile conditions were presented to the French Academy. I will not take up here the many reasons why geriatrics should take a place in medicine analogous to pediatrics. I will point out, however, that the pediatrist does not look on the child as an adult with incompletely developed organs and tissues but as a *child*; and the geriatrist (I think the term is applicable) does not look on the aged person as an adult having pathologically degenerated organs and tissues, but as an aged person. The lack of an adequate term expressing the aged person, like the German *Greis*, or the French *vieillard*, has perhaps some influence in perpetuating our antiquated point of view of the aged. If we will realize, for example, that in the aged the normal systolic pressure is about the age plus 100 in millimeters, that the erythrocyte count is about 3,600,000, and that the polynuclear leukocytes are increased, that the urine is diminished in amount, that the urea output is greatly lessened, that albumin and sugar are frequently found without other evidence of nephritis or diabetes, that the normal expiration is about 20 a minute, yet the carbon dioxid output is from 20 to 40 per cent. less than in maturity, etc., we shall not make efforts, such as are often made now, to restore such conditions to the norm of maturity. With a knowledge of senile anatomy and physiology and senile pathology, we can clear ourselves of Seidel's justified charge, for it holds as good to-day as it did nearly twenty-five years ago. The subject, if not the name, is recognized in Germany and it is studied in France, while we are so intent in our efforts to lead the world in surgery and child welfare that we neglect the less promising, less interesting, less remunerative, economically deficient, aged.

Part of what I have said applies also to the public care of the aged. To those who are sufficiently interested in the well-being of the aged to study their welfare, I would recommend a visit to the New York City Farm Colony and compare the result of suitable employment for the aged with other institutions where the aged inmates are not employed. Compare the mental and physical condition of the inmates in homes where the sexes are segregated with these conditions where they are not segregated. The study of the needs, the peculiarities and infirmities of the aged will show how irrational are our present antiquated methods of dealing with the aged.

I. L. Nascher, M.D., New York.

Facts Concerning Reported Discovery of Germ of Gas Gangrene

To the Editor:—Information has come to us that reports have been circulated by a number of American newspapers announcing the discovery by us of the germ of gas gangrene and of a serum for the prophylactic and curative treatment of this condition. We were at first tempted to let these reports pass unnoticed, but, on reflection, we feel that they should not go uncorrected.

The only possible foundation for such an announcement is the fact that we did make bacteriologic studies in a series of cases of so-called "gas" gangrene, and that in a number of them, we were able to isolate *Bacillus perfringens*. Our findings have since been confirmed by Dr. Weinburg of the Institut Pasteur, who has been requested by the French government to make a thorough bacteriologic investigation of the condition. As for our reported discovery of a serum for the treatment of "gas" gangrene, that is a "discovery" of the bacteriologic laboratories of the Associated Press, in which so many other wonderful discoveries have originated.

Hunter W. Scarlett,
Formerly Resident Physician.
F. A. Desjardins,
Resident Physician.
American Hospital of Paris, Neuilly-sur-Seine.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

LITERATURE ON ROENTGENOSCOPY OF THE GASTRO-INTESTINAL TRACT

To the Editor:—Please give me information concerning roentgenoscopic diagnosis of diseases of the intestinal tract.

Douglas Ford Robbins, M.D., Minneapolis.

Answer.—The following is a list of literature on this subject:

Mills, R. Walter: Points of Value in Roentgenoscopy of Gastro-Intestinal Tract, The Journal, Oct. 11, 1913, p. 1344.
Chapin, H. D.: Radiographic Studies of Gastro-Intestinal Tract in Infants, The Journal, Oct. 8, 1913, p. 1419.
Case, J. T.: Roentgenologic Observations on Function of Ileocolic Valve, The Journal, Oct. 3, 1914, p. 1194.
Clark, L. P., and Busby, A. H.: Value of Roentgen Analysis of Gastro-Intestinal Tract in Some Types of So-Called Functional Nervous Disorder, The Journal, Feb. 7, 1914, p. 440.
Cannon, W. B.: Early Use of Roentgen Ray in Study of Alimentary Canal, The Journal, Jan. 3, 1914, p. 1.
Carman, R. D.: Technic of Roentgen Ray Examination of Gastro-Intestinal Tract in Interpretation of Screen and Plate Findings, The Journal, Aug. 2, 1913, p. 321.
Albu, A.: Roentgenoscopy in Gastro-Intestinal Disease, *Med. Klin.*, March 1, 1914.
Brown, P.: Roentgenologic Consideration of Relation of Individual Type to Intestinal Stasis, *Boston Med. and Surg. Jour.*, Oct. 15, 1914.
Pfahler, G. E.: Study of Chronic Intestinal Stasis by Means of Roentgen Rays, *Surg., Gynec. and Obst.*, November, 1914.
Marcuse, E.: Roentgen Examination of Stercosis of Small Intestine, *Berl. klin. Wchnschr.*, Oct. 5, 1914.
Eisen, P.: Roentgen Diagnosis of Obstruction in Alimentary Tract, *Wisconsin Med. Jour.*, September, 1914.
Axford, W. H.: Roentgenologic Study of Alimentary Canal, *New Jersey State Med. Soc. Jour.*, July, 1914.
Henriques, A.: Roentgen Examination of Digestive Tract, *New Orleans Med. and Surg. Jour.*, August, 1914.
George, A. W., and Gerber, I.: Observations from the Study of a Thousand Gastro-Intestinal Cases, abstr., The Journal, Oct. 17, 1914, p. 1419.

KELLER'S TUBERCULIN TEST PLATE

To the Editor:—1. What is Keller's Tuberculin Test Plate?
2. Is it reliable for the early diagnosis of tuberculosis? X. Y. Z.

Answer.—1. Keller's Tuberculin Test Plate is a piece of adhesive plaster about the size of a common bunion plaster, in the middle of which is a circle about 2 cm. (0.8 inch) in diameter containing an ointment-like material. The nature of the salve must be judged by its effects. The following are the directions for applying the Tuberculin Test Plate:

> Any convenient place on the abdomen, chest or back may be selected. A little alcohol may be applied if the skin is oily; otherwise it is sufficient to rub gently with dry gauze until very slightly reddened. The parts should be dry when the Plate is applied.
>
> Remove the protective covering, applying the Plate by means of the adhesive, using such force as necessary to cause it to firmly adhere. It should be allowed to remain undisturbed twenty-four hours, at the end of which time it is removed. It is never necessary to apply longer than twenty-four hours.
>
> A positive reaction is evidenced by the appearance of a number of fine red papules. These may be present at the time the Plate is removed, or they may not appear until twenty-four or forty-eight hours later. Also there may be a few present, and more appear later. No opinion therefore should be given until the end of that period.
>
> It is convenient and practicable to designate the reaction by the number of papules: Less than ten, a slight reaction; up to thirty, medium, and larger numbers, a marked reaction.

From the effects described, it seems safe to assume that the material contains tuberculin, and, judging from the mode of application, it is the Moro ointment. This preparation consists of equal parts of old tuberculin and anhydrous lanolin.

2. The Moro test is reliable in case of a positive reaction to determine the presence of tuberculosis in the organism, but it does not discriminate between active and latent tuberculosis. As nearly every person has experienced tuberculous infection before reaching adult life, a large majority of adults give a positive reaction to it. Used by the experienced physician, it may yield valuable information in case of children suspected of tuberculosis. However, as a secret test much needless anxiety will be caused by it.

ATTENDANCE BY PHYSICIAN ON WIFE IN CONFINEMENT

To the Editor:—Is it legal and ethical for a physician to attend his own wife in confinement in the state of Michigan? S. C. J.

Answer.—Yes.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Alabama: Montgomery, Jan. 5, 1915. Chairman, Dr. W. H. Sanders, Montgomery.
Alaska: Juneau, Jan. 5, 1915. Sec., Dr. H. C. DeVighne, Juneau.
Arizona: Phoenix, Jan. 5-6, 1915. Sec., Dr. John Wix Thomas, 200 Nat'l Bank of Ariz. Bldg., Phoenix.
Illinois: Chicago, Jan. 13-15, 1915. Sec., Dr. C. St. Clair Drake, Springfield.
Indiana: Indianapolis, Jan. 12-14, 1915. Sec., Dr. W. T. Gott, State House, Indianapolis.
Iowa: Des Moines, Jan. 19-21, 1915. Sec., Dr. Guilford T. Sumner, Capitol Bldg., Des Moines.
Minnesota: Minneapolis, Jan. 5-8, 1915. Sec., Dr. Thomas McDavitt, 814 Lowry Bldg., St. Paul.
New Hampshire: Concord, December 29-30. Regent, Mr. H. C. Morrison, Concord.
New Mexico: Santa Fe, Jan. 11, 1915. Sec., Dr. W. E. Kaser, East Las Vegas.
New York: Albany, Buffalo, New York, Syracuse, Jan. 26-29, 1915. Mr. H. H. Horner, Chief, Examination Division, State Education Bldg., Albany.
North Dakota: Grand Forks, Jan. 5, 1915. Sec., Dr. G. M. Williamson, Grand Forks.
Oklahoma: Oklahoma City, Jan. 12-14, 1915. Sec., Dr. John W. Duke, Guthrie.
Rhode Island: Providence, Jan. 7, 1915. Sec., Dr. Gardner T. Swarts, State House, Providence.
South Dakota: Pierre, Jan. 12, 1915. Sec. Dr. P. B. Jenkins, Waubay.
Utah: Salt Lake City, Jan. 4-5, 1915. Sec., Dr. G. F. Harding, 407 Templeton Bldg., Salt Lake City.
Vermont: Montpelier, Jan. 11-13, 1915. Sec., Dr. W. Scott Nay, Underhill.
Washington: Walla Walla, Jan. 5, 1915. Sec., Dr. C. N. Suttner, Baker Bldg., Walla Walla.
Wisconsin: Madison, Jan. 12-14, 1915. Sec., Dr. John M. Beffel, 3200 Clybourn St., Milwaukee.

Kentucky June Report

Dr. A. T. McCormack, secretary of the State Board of Health of Kentucky, reports the written examination held at Louisville, June 15-17, 1914. The total number of subjects examined in was 11; total number of questions asked, 110; percentage required to pass, 70. The total number of candidates examined was 56, of whom 50 passed and 6 failed. The following colleges were represented:

PASSED College	Year Grad.	Per Cent.
Chicago College of Medicine and Surgery	(1914)	94
Kentucky School of Medicine	(1908)	73
University of Louisville (1910) 82; (1912) 88; (1914) 81, 81, 82, 82, 82, 82, 82, 82, 83, 83, 84, 84, 84. 84, 85, 85, 85, 86, 86, 86, 86, 87, 87, 87, 87, 87, 87, 87, 87, 87, 88, 88, 88, 88, 90, 90, 92.		
Eclectic Medical College, Cincinnati	(1914)	82
Jefferson Medical College	(1913)	90
Lincoln Memorial University	(1913) 80; (1914)	82
Meharry Medical College	(1911) 73; (1914)	82
University of Tennessee	(1914)	87
Vanderbilt University	(1913) 94; (1914)	84
FAILED		
Bennett Medical College	(1913)	69
Louisville Medical College	(1906)	60
Louisville National Medical College	(1912)	71*
University of Louisville	(1910) 50; (1911)	74*
American Eclectic Medical College	(1893)	42

* Fell below the required average in one or more subjects.

The following questions were asked:

ANATOMY

1. Name the bones entering into the formation of the pelvis and give the articulations. 2. Describe the tibia, giving its articulations and points of muscular and ligamentous attachments. 3. Describe the diaphragm and name the openings connected with it. 4. Describe the right and left subclavian arteries, giving points of difference between them. 5. Give the origin of the superior mesenteric artery and its distribution. 6. Give the origin and distribution of the sciatic nerve. 7. Name the membranes of the spinal cord, giving their relations. 8. Name and describe the fissures of the brain. 9. Locate and describe the ligamentum teres. 10. Describe the inguinal canal.

PHYSIOLOGY

1. Name the different layers composing the walls of the stomach and give the function of each. 2. Name and discuss several causes of indigestion. 3. Classify foods and tell how to prepare a substitute for mother's milk on a physiologic basis. 4. Give the origin of the various constituents of the blood and describe its circulation. 5. Describe the kidney and functions of its different parts. 6. Describe the construction of the teeth and tell how to preserve them. 7. What are the functions of (a) cornea, (b) iris, (c) retina? 8. (a) What are the

functions of muscles? (*b*) Differentiate microscopically between voluntary and involuntary muscles. 9. Discuss the ventilation of a one-room schoolhouse. 10. How is fat digested?

CHEMISTRY

1. (*a*) What is a carbohydrate? (*b*) A hydrocarbon? (*c*) Give example of each. 2. (*a*) Does the pancreatic juice give an acid or an alkaline reaction? (*b*) To what chemical, or chemicals, is the reaction due? 3. Name two preparations of sodium, giving chemical name and pharmaceutical or common name and symbols. 4. (*a*) Define and give example of a chemical symbol; (*b*) a chemical formula. 5. (*a*) Give an antidote for acute arsenical poisoning. (*b*) How would you prepare it? 6. (*a*) What is a source of ptyalin? (*b*) What effect does it have on starches? (*c*) Do acids decrease or increase its activity? 7. (*a*) What symptoms would lead you to believe you had a case of chronic lead poisoning? (*b*) What is the antidote? 8. (*a*) Give the symbols of silver. (*b*) Potassium. (*c*) Mercury. (*d*) Gold. (*e*) Formula of water. 9. (*a*) What do you understand by the term "oxidation"? (*b*) Give an example. 10. (*a*) Is water an element or a compound? (*b*) What is water, chemically considered?

BACTERIOLOGY

1. Define (*a*) culture, (*b*) asepsis, (*c*) antisepsis, (*d*) disinfection, and (*e*) germicide. 2. (*a*) Give morphology of tubercle bacillus. (*b*) What are the channels of infection? 3. What are aerobic and anaerobic bacteria? 4. What is sterilization? 5. (*a*) What is immunity? (*b*) How is it acquired? 6. (*a*) Describe the Klebs-Loeffler bacillus. (*b*) Discuss diphtheritic antitoxin. 7. (*a*) Of what significance is the Widal reaction in typhoid fever? (*b*) Describe it. 8. Give conditions favoring bacterial growth and antagonistic to it. 9. (*a*) Mention some culture mediums. (*b*) How is a pure culture made? 10. Differentiate between contagion and infection, and the means employed to prevent either.

ETIOLOGY AND PHYSICAL DIAGNOSIS

1. (*a*) Define heart block. (*b*) At what age does it most frequently occur? 2. (*a*) Give etiology of malarial fever; (*b*) of yellow fever, and (*c*) mode of transmission to man. 3. (*a*) Give etiology of endocarditis, and (*b*) the two diseases most frequently leading to it. 4. Mention five frequent causes of asthma. 5. Give etiology of arteriosclerosis. 6. Define physical diagnosis and give names of five methods used in examining the thoracic organs. 7. Enumerate the symptoms of catarrhal jaundice; name two other diseases of this region that may resemble it, and differentiate them from catarrhal jaundice. 8. Enumerate the symptoms and physical signs of diffuse peritonitis, and name six conditions within the abdomen that may simulate it. 9. Describe the natural heart sounds, and the causes of each. 10. Name the causes of ascites, and tell how it may be discovered.

HYGIENE, MEDICAL JURISPRUDENCE, MENTAL AND NERVOUS DISEASES

1. In what way and how is carbon dioxid deleterious to health? 2. How would you construct a camp for those suffering from a contagious disease? 3. Name four diseases that are communicable to man through cow's milk. 4. How would you thoroughly inspect meat for the market? 5. What rules would you advise to prevent the spread of tuberculosis? 6. (*a*) Diagnose and treat infantile paralysis; (*b*) locomotor ataxia. 7. Describe and treat herpes zoster. 8. How would you take a dying statement? 9. How would you construct a post-mortem examination in a case of suspected arsenic poisoning? 10. Diagnose and treat a case of psoriasis.

OBSTETRICS AND GYNECOLOGY

1. Define (*a*) ovulation, (*b*) menstruation, (*c*) abortion, (*d*) version, and (*e*) subinvolution. 2. What is (*a*) ovaritis? (*b*) salpingitis? (*c*) What is the most frequent cause of each? 3. (*a*) What is dysmenorrhea? (*b*) Give causes and symptoms. 4. (*a*) What is puerperal septicemia? (*b*) What precaution would you take to *prevent it?* 5. (*a*) Give function of placenta. (*b*) What difficulties may you expect to encounter in its delivery? 6. (*a*) Tell exactly how you would manage a breech presentation. (*b*) What precautions would you take? 7. (*a*) Give indications for the use of forceps. (*b*) State how you would apply them. 8. (*a*) What is the most frequent cause of post-partum hemorrhage? (*b*) How would you manage a case? 9. Give methods of diagnosing pregnancy at the end of the tenth week. 10. (*a*) What is eclampsia? (*b*) Under what condition may you expect it?

OPHTHALMOLOGY, OTOLOGY AND LARYNGOLOGY

1. Under what circumstances would you advise the enucleation of the eyeball? 2. Differentiate between trachoma and blepharitis marginalis. 3. Give etiology and symptoms of glaucoma. 4. Give symptoms and etiology of iritis. 5. Under what circumstances would you puncture the membrana tympani? 6. Give etiology, symptoms and probable sequelae of acute otitis media. 7. (*a*) What are the symptoms of impacted cerumen? (*b*) How would you manage a case? 8. (*a*) Give etiology of mastoid abscess. (*b*) How would you diagnose same? 9. (*a*) What are the indications for intubation? (*b*) Give technic of the operation. 10. Give symptoms and management of a case of postnasal polypi.

PATHOLOGY

1. Name the varieties of leukocytes, and give the percentage of each found in normal blood. 2. Name and describe the pathology of the various stages of lobar pneumonia. 3. Give the pathologic changes found in acute infantile paralysis (*anterior poliomyelitis*). 4. Differentiate between gross symptoms of benign and malignant tumors of the breast. 5. Differentiate between the microscopic examination of (*a*) fibromas, (*b*) sarcomas, and (*c*) carcinomas of the breast. 6. Give the pathology of ulcer of the stomach. 7. *Differentiate* between ulcer and carcinoma of the stomach. 8. Describe the stomach and liver found post mortem in a chronic alcoholic. 9 and 10. Select four of the five slides and make a diagnosis.

PRACTICE OF MEDICINE AND MATERIA MEDICA

1. How would you diagnose a case of diphtheria, describe the trea ment in detail and tell when it would cease to be infectious. 2. Ho would you confirm a diagnosis of malaria, and how would you treat i 3. Describe in detail the treatment of syphilis. 4. What sympton would lead you to suspect hookworm disease, and how would you co firm the diagnosis? 5. Give the treatment in detail for a 12-year-o child weighing 72 pounds having hookworm disease. 6. Give physiolog action, therapeutics and dosage of tincture of aconite. 7. Give in det *the prevention and curative treatment of tetanus and discuss the phy ology of each step.* 8. *How would you treat an acute suppurative pe tonitis?* 9. Tell how to *immunize a patient against typhoid fever.* 1 How would you treat chronic constipation and how would you pr vent it?

SURGERY

1. How would you treat a fracture of the femur? 2. Give diagnost symptoms of fracture of the base of the skull. 3. How would y recognize an abscess of the appendix and what treatment would y advise? 4. How would you recognize intestinal obstruction and wh treatment would you advise? 5. If the foot were crushed at the ank where would you advise amputation, and why? 6. What treatme would you advise in a depressed fracture of the vault of the skul 7. How would you treat a Colles' fracture of the forearm? 8. Wh would be the indications for operation in a penetrating wound of t abdominal wall? 9. How would you treat a comminuted fracture of t olecranon process of the ulna? 10. What treatment would you advi in cancer of the breast?

Michigan June Report

Dr. B. D. Harison, secretary of the Michigan State Boar of Registration in Medicine, reports the written examinati held at Ann Arbor, June 9-11, 1914. The total number subjects examined in was 14; total number of questio asked, 100; percentage required to pass, 75. The total nur ber of candidates examined was 57, of whom 56 passed ar 1 was conditioned. The following colleges were repr sented:

PASSED

College	Year Grad.	Pe Ce
Chicago College of Med. and Surg.	(1912)	87.
University of Illinois	(1914)	86.
University of Louisville	(1914)	76.
University of Michigan, Dept. of Med. and Surg.	(1910) 85.1; (191 89.6; (1913) 78.4, 85; (1914) 83.1, 83.5, 84.7, 84.9, 85.6, 86, 86.3, 86. 86.3, 86.4, 86.5, 86.8, 87.3, 87.4, 87.5, 87.5, 87.7, 87.7, 87.8, 87.8, 87. 87.9, 87.9, 88, 88, 88, 88.2, 88.3, 88.3, 89, 89.1, 89.4, 89.6, 91.9.	
University of Michigan, Homeo. Med. College	(1914) 79, 80, 80.3, 80. 80.9, 81.1, 84.5, 85.1, 85.7, 86.3, 86.3, 86.9, 87.6, 88.	
University of Toronto	(1895)	89

One candidate, a graduate of the University of Michigan, Home pathic Medical College, 1914, was conditioned in one subject.

Missouri February Report

Dr. J. A. B. Adcock, secretary of the Missouri Sta Board of Health, reports the oral and written examinati held at St. Louis, Feb. 9-11, 1914. The total number of su jects examined in was 14; total number of questions aske 100; percentage required to pass, 75. The total number candidates examined was 47, of whom 38 passed and 9 faile The following colleges were represented:

PASSED

College	Year Grad.	P Ce
Chicago College of Medicine and Surgery	(1913)	75
Rush Medical College	(1913)	84.2, 84.3, 86.
Kentucky School of Medicine	(1899)	75
University of Louisville	(1898)	79
Tulane University of Louisiana	(1910)	82.
Johns Hopkins University	(1913)	80.
Tufts College Medical School	(1898)	82.
American Med. College, St. Louis	(1881) 75; (1903)	75
Barnes Medical College	(1900) 75; (1907) 75; (1910)	75
Beaumont Hosp. Med. Coll., St. Louis	(1289) 75; (1893) 75; (1900)	75
Homeopathic Medical College of Missouri	(1900)	75
Kansas City Hahnemann Medical College	(1913)	83.
Missouri Medical College	(1881) 75; (1890)	75
St. Louis College of Phys. and Surgs.	(1905) 75; (1913)	75, 75.
St. Louis University	(1904) 75; (1913) 82; (1914)	81.5, 82.2, 82.6, 87.
University Medical College, Kansas City	(1903)	75
Washington University	(1893) 75; (1894) 75; (1913)	81.
Starling Medical College	(1895)	83.
University of Texas	(1913)	86.6, 87.3, 88.

FAILED

College	Year Grad.	P Ce
Kentucky School of Medicine	(1907)	68.
Barnes Medical College	(1910)	69.
Ensworth Medical College	(1912) 67.3; (1913)	67.
St. Louis College of Physicians and Surgeons	(1909) 59.8; (191	47.6, 50.4, 51.
University Medical College, Kansas City	(1911)	65

that you belong to a profession; never be too intimate with any one around the house. 5. Don't ever tell the household what the doctor says—don't gossip. 6. Don't forget that the doctor should give prognosis and diagnosis. 7. Don't fail to anticipate anything possible that could contribute to the comfort of your patient. 8. Don't forget that noises must be avoided. Your shoes must not squeak. Noisy shoes may seem a small matter to you, but at times will greatly disturb your patient. Move furniture softly. 9. Don't forget that neatness about the patient's room, as well as yourself, is absolutely essential. 10. Don't forget that your teeth must be beyond criticism, as the breath is foul if they are dirty or decayed. 11. Don't forget you must serve your food in an appetizing way, be it a glass of buttermilk or a tray full of dishes. 12. Don't ask sick patients what they want to eat. 13. Don't forget that promptness is everything. The patient must not remind you of the time for medicine, food, bath, etc. 14. Don't ever offer an excuse of any description for anything either to doctor or patient. 15. Don't whisper about the sick room. 16. Don't forget that cleanliness is next to godliness. 17. Don't slam doors. 18. Don't ever forget that you stand between the dead and the living—and your mission is to relieve God's sufferers, and *do be amiable.*—J. D. GRIFFITH, M.D., Kansas City, Mo.

Protection Against Cold for Troops in the Field

A German translation has recently appeared of a Japanese work describing the measures to protect against cold which were found most effectual in the Japanese army during the winter campaign in Manchuria. Every man had an extra pair of boots, mittens and foot cloths, to change at night. They were made to eat often and to keep awake those inclined to drop to sleep on the march or in changing guards. They were kept from doing exercise that would make them sweat, and they were not allowed to lie down on snow. When straw was not available, they had to shovel the snow away so as to lie on the ground. The clothes and shoes were made larger for winter than for summer wear, to allow for layers of air. The buttonholes and other openings were protected with special care, after small frozen areas had been found on the chest of some of the soldiers, corresponding to the buttonholes. The fingers and feet were rubbed with tallow or other unsalted fat, and mittens were worn over gloves. The mittens were sometimes packed with straw or feathers and the shoes with horse bedding. Fur keeps out the wind better than woolen, and a fur abdominal band proved a great help in extremely cold weather. Flannel suspensories were found indispensable to protect at the latrines. Muffs of fur or felt and wristlets of wool or fur are highly recommended. Whenever the hands were found frozen, it was learned that the men had been wearing knitted gloves. The foot cloth worn instead of socks can be dried in emergencies by wearing it next the body. Wrapping the toes in paper, or the whole foot in a pig bladder was also found useful at times. Battalions were provided with flint and steel for starting a fire when matches were lacking or too damp to light.

The "Work Treatment" of Organic Diseases

One of the distressing phases of many crippling diseases is the patient's hopeless despair at being unable to hold his place in the world. Herbert J. Hall (*Boston Med. and Surg. Jour.*, Aug. 6, 1914), remarks that, while it has come to be recognized that suitable mental and physical occupation is an indispensable feature of the treatment of the functional nervous diseases, the relief which properly adapted work may afford in organic diseases—chronic, partly disabling conditions—is not yet sufficiently understood. The good results are the saving of the patient's self-respect and interest in life, the economic benefit from his earnings if he is poor, and in some conditions actual physical improvement. In many chronic arthritis cases, Hall says, the muscular spasm and joint thickening yield more readily to purposeful industrial movements than to massage or other remedial exercises. The interest in accomplishing something relieves the muscular tension. In ataxic cases patients grow intensely weary of the meaningless Frenkel exercises. Hall cites the case of a woman apparently doomed to progressive disease of the spinal cord whose gait was greatly improved and whose whole outlook on life was immeasurably brightened through taking up hand weaving, which involves the use of from two to six foot pedals besides the dexterous throwing of a shuttle. In many cases of progressive blindness, it is suggested, a gain would be made if, during the coming on of the blindness, the patient were taught a trade which could be carried on with pleasure and profit after blindness was complete.

A number of institutions have adapted various crafts to therapeutic uses. Hall mentions the state colony for the insane at Gardner, Massachusetts, where practically all of the 1,200 patients are kept at work. Under skilled directions the patients make all their clothing, even producing on the place the material for woolen garments. In addition they raise all their own food-supplies, reclaim land and erect new buildings. The Massachusetts General Hospital has established under its own roof workshops for certain chronic outpatients who would otherwise be unable to find employment. The Burke Foundation in New York City finances a series of workshops for patients with incurable chronic heart disease, who would break down under ordinary industrial conditions, but who are thus enabled to become partially self-supporting, and thereby to retain much satisfaction in life.

Hall warns against several mistakes likely to result in discouragement, such as the employment of meaningless work which results in nothing useful or beautiful and permitting overwork or any work at all in unsuitable conditions or at unsuitable times. At the same time, he believes that the risk of overdoing has been largely exaggerated, and that the injunction to "make the patient comfortable; do not bother him with work" too often means a lifetime of unhappiness.

It is best to allow the patient to do work which follows the lines of his old occupation if this is possible. Still, patients whose ordinary vocation is rendered unsafe, sometimes take up new trades with surprising facility. Thus a blacksmith or teamster with a badly compensated heart may become a good hand weaver or maker of clothing. Almost any trade may be adapted. "The important thing to remember is that work should be supplied in some form, even in organic illness, whenever the conditions can be made possible."

Acute Toxic Reaction to Atophan

G. Marañon, editor of the *Revista Clinica de Madrid,* reports from his own practice, in the issue of July 30, 1914, two cases of acute intoxication from atophan. The first patient was a man long suffering from gout rebellious to ordinary measures. Under a course of atophan he improved. A few months later the symptoms returned and atophan was prescribed again, when symptoms of acute intoxication developed, chills, fever, great depression and a red eruption on the head and neck resembling acute erysipelas, with extraordinary proportions of uric acid in the extremely scanty urine. A month later the same syndrome reappeared anew when he began to take atophan again. The man died a few months later of tuberculosis. The second patient was a young woman who was also improved by atophan after long suffering from pain in one wrist. The pain returning some months later, she took one tablet of atophan and at once developed acute intoxication like the syndrome described in the first patient, with intense pruritus, but no eruption or exceptional uric-acid output. Marañon attributed the symptoms to casual contamination of the atophan, but the same syndrome returned even more severe a few weeks later after taking a single tablet obtained from another source, other patients taking without reaction tablets from the same package. Oyarzabal has recently reported a similar case in a man long subject to gout who had previously improved under atophan but presented the signs of an acute intoxication after taking novatophan. The eczema-like dermatitis which developed in this case proved very rebellious. This man had had dermatitis develop years before when a skin affection was being treated with formaldehyd.

Medicolegal

Law Requiring Washrooms for Employees Constitutional

(People vs. Solomon (Ill.), 106 N. E. R. 458)

The Supreme Court of Illinois holds constitutional an act to provide for washrooms in certain employments to protect the health of employees and secure public comfort, approved June 26, 1913. The court held that a similar act passed in 1903, which applied only to the owners or operators of coal mines, was unconstitutional on the ground that it was special or class legislation; that the legislature could not require the owners or operators of coal mines only to provide and maintain washrooms for their employees, for the reason that such a law would place on mine owners or operators a burden not borne by other employers of labor, and such enactment would be special legislation. Any act of this kind, to be valid, must apply to all employers of labor similarly situated or to all employers of labor where conditions obtain which would require washrooms. This object was accomplished in the act of 1913 by naming in the first section of the act, specifically certain employments to which the act applies, namely, of every owner or operator of a coal mine, steel mill, foundry, machine shop, followed by the words, "or other like business in which employees become covered with grease, smoke, dust, grime and perspiration to such extent that to remain in such condition after leaving their work without washing and cleansing their bodies and changing their clothing, will endanger their health or make their condition offensive to the public." The purpose of the law is to promote the health and welfare of employees in certain lines of business where the conditions are such that every facility should be afforded for cleanliness, and to provide for the comfort and welfare of those with whom such employees come in contact after leaving their places of employment. The right of the general assembly to enact such laws is under the police power of the state. Nor, as the court construes this law, is it ambiguous and uncertain. It applies to the employments specifically mentioned in the act and to all other like business of permanent character where the same conditions prevail and where there would be the same reasons for the law to apply.

Liability for Wrongful Removal of Typhoid Fever Patient—Admissible Evidence

(Lynch vs. Rosemary Manufacturing Co. (N. C.), 83 S. E. R. 6)

The Supreme Court of North Carolina says that, the jury having accepted the plaintiff's version of the removal from one of the defendant's houses of his wife while sick in bed with typhoid fever, and having rendered a verdict that the defendant unlawfully and wrongfully caused her death, the court finds no good reason for disturbing their conclusion on the issue fixing liability on the company. But the court holds that there was error in an instruction as to the amount of damages, wherein the jury were told they *should* take all the evidence and say what the wife's earnings would have been during the balance of her life, and about how long they found she would have lived. The rule established by the decisions of this court for the admeasurement of the damages for this kind of an injury is that it is the present net value of the life which has been wrongfully taken. For that error the judgment in the plaintiff's favor for $2,500 is reversed and a new trial is granted on the issue as to damages.

It was urged for error that some of the expert witnesses were allowed to give it as their opinion that the removal was the cause of the wife's death, as it violated the rule that a witness may not express an opinion on the very question at issue between the parties. But the questions objected to were clearly within the rule for the reception of such evidence, being opinions of medical experts as to the cause of the patient's death, predicated on the symptoms of the patient and the attendant facts, assumed to have been found by the jury.

Nor does the court think that there was error in asking a medical witness, on cross-examination, if all recognized medical authorities do not teach that typhoid fever patients must not be moved, if possible to do without it, after the witness, who had treated the patient, had testified for the defendant in effect that the removal, in his opinion, "had not unfavorably affected the patient in this instance, and that, on the facts of the case, would likely increase her chances for recovery." It is very generally recognized that extracts from medical books are not admissible in evidence, and for the very sufficient reason that the author does not write under the sanction of an oath and has not been subjected to cross-examination. Moreover, the decisions of this state are to the effect that statements from these books may not be presented as such in the arguments of counsel nor introduced by means of questions put on cross-examination, as by reading an opposing opinion from a text-book and asking the witness "if it is or is not true." The principle, however, is not as exigent in case of cross-examination, and when a witness has testified as an expert, professing to have special training and knowledge from standard works of his profession, a general question of this kind may be allowed with a view of testing the value of his opinion.

Assured Having Had Other Complaints than One Causing Death

(Cunningham vs. Modern Brotherhood of America (Neb.), 148 N. W. R. 918)

The Supreme Court of Nebraska holds that where the assured, shortly prior to making his application for membership in the defendant association, was treated for catarrh in the head, and still prior to that time had been treated for lumbago or rheumatism in the back, but there was no evidence to show that the *particular disease which caused* his death had been contracted before the beneficiary certificate was issued, it would not be considered that an inquiry could be made as to whether the disease of which he died was latent in his body. The fact that he had other complaints than the particular one which caused his death placed the beneficiary under no obligation in case of suit to show that the assured was sound as to the particular complaint causing his death at the time that the certificate was issued and he was admitted to membership. In an action on a beneficiary certificate it is not proper to place the burden of proof on the beneficiary to show that, at the time the certificate was issued, the assured was free from the particular infirmity which ultimately caused his death. Persons engaged in a life insurance business should be required to take the risk that properly belongs to the business, and the right of the beneficiary to recover should not be made to depend on the skill, intelligence and accuracy of knowledge possessed by the assured touching his own physical condition.

Liability for Causing Malarial Fever

(Rice vs. Norfolk-Southern Railroad Co. (N. C.), 82 S. E. R. 1034)

The Supreme Court of North Carolina affirms a judgment in the plaintiff's favor for damages alleged to have been due to the defendant having negligently permitted one of its drains to become clogged, ponding water under the plaintiff's house, with the result, as witnesses testified, of causing his children, aged, respectively, 13, 15 and 18 years, to have malarial fever. The court says that there was evidence of the cost of the physician's bill and medicine and of the plaintiff's loss of the services of his children. There was also the testimony of the physician that the ponded water bred mosquitoes whose bite caused malaria. It is now the accepted doctrine of the medical profession that malaria is transmitted by the bite of a certain kind of mosquito, anopheles stegomyia, and that these mosquitoes are bred in standing water. True, counsel for the defendant expressed his belief that mosquitoes were *only bred* in running water, and doubted the correctness of the doctrine that malaria was transmitted by their bite; but there was the testimony of the physician to that effect, and the trial court properly left the matter, being one of fact on the testimony, to the jury. Indeed, there was no evidence to the contrary.

Society Proceedings

COMING MEETINGS

American Association of Anatomists, St. Louis, Dec. 28-30.
American Physiological Society, St. Louis, Dec. 27-30.
Society of American Bacteriologists, Philadelphia, Dec. 29-31.
Western Surgical Association, Denver, Dec. 18-19.

JOINT MEETING OF THE NEW ENGLAND PEDIATRIC SOCIETY, THE PHILADELPHIA PEDIATRIC SOCIETY AND THE PEDIATRIC SECTION OF THE NEW YORK ACADEMY OF MEDICINE

Held in New York, Nov. 5, 1914

Dr. William M. Polk in the Chair

Experimental and Clinical Studies in Hemolytic Jaundice, with Special Reference to the Effects of Splenectomy

Dr. Edward B. Krumbhaar, Philadelphia: The experiments which Dr. Pearce, myself and our colleagues have been carrying on for the past three years, though at first concerned with the relation of the spleen to hemolytic jaundice, soon opened up to us the broader problem of the relation of the spleen to blood formation and destruction in general. Our first experiments confirmed and elaborated the earlier observations of Banti and Joannovics that it was more difficult to produce jaundice by means of hemolytic serum in splenectomized than in normal dogs. Attempts to explain the cause of this phenomenon, which was directly related to clinical splenectomy for the cure of various conditions associated with hemolytic jaundice, led us to study the blood changes following splenectomy. We found that anemia always developed, reached the maximum about the third week and dropped to normal in about ten months. Pearce, Karsner and Peet find that the resistance of the red cells is increased after splenectomy both to hypotonic salt solution and to immune serum. Austin noticed that the greatest resistance to jaundice occurred at the same time as the greatest anemia developed. I have found the same resistance and have concluded that the phenomena were partly due to the more resistant erythrocytes, and partly to the fact that less blood is destroyed because there is less blood to be destroyed. In testing the blood-forming powers of the spleen by making a comparison of the blood going to and coming from the organ, some authorities assert that they have found more red cells, white cells and hemoglobin in the splenic vein, but our experiments along these lines were negative and it seems that we must accept the dictum that red cells at least are formed only in the bone marrow. Asher and his pupils have offered as an explanation of the anemia following splenectomy that increased amounts of iron are lost through the stools, but here also our experiments have failed to confirm such an explanation. We found, however, that injection of splenic extracts intraperitoneally have a marked temporary effect in raising the erythrocyte count, the leukocytes and hemoglobin, which is presumably due to the stimulation of the bone marrow. A possible explanation of the anemia following splenectomy is, therefore, that the bone marrow is deprived of a stimulating hormone, and the explanation of the later recovery from the anemia may be found in that the lymph-nodes found enlarged after splenectomy have presumably taken over some of the function of the spleen. Although splenectomized dogs showed less tendency to jaundice when hemolytic agents were administered, nevertheless such agents caused a greater fall in the blood counts, a more lasting damage, and a greater fragility of the red cells than in normal dogs. Apparently the lessened tendency to jaundice is connected in some way with the anemia caused by splenectomy, while the lessened power to recover from the hemolytic anemia must be attributed to the loss of some specific substance from the spleen. Banti has shown evidence of special hemolytic activity of the splenic extracts and of dissociated hemoglobin in the splenic vein, but our observations have failed to substantiate these claims. The unsaturated fatty acids are well known as hemolytic agents and the lessened blood destruction after splenectomy may thus be explained.

A review of the history and a detailed description of the different types of primary splenomegaly with anemia, namely, Gaucher's, Banti's, von Jaksch's and the two types of hemolytic jaundice, the Hayem-Widal, or acquired form, and the Chauffard-Minkowski, or congenital or hereditary form, show that Gaucher's disease has but little in common with the other types of splenic anemia and though the negative character of the symptoms might cause it to be confused with Banti's disease, pathologic examination should admit of a proper differential diagnosis. Although the etiology of Banti's disease is unknown, evidence points to the close causative relationship of the spleen. One would not expect the removal of a largely fibrotic organ to be attended with marked somatic changes, and it is in the earlier stages of the disease that splenectomy has proved most beneficial. The acquired and congenital types of hemolytic jaundice with splenomegaly possess rather characteristic differences and I deem it advisable to follow the Continental custom and consider them as independent conditions. In the congenital type the resistance of the red blood cells to hypotonic salt solution is much diminished, and this furnishes a simple differential test according to the technic which we used.

The cardinal symptoms of these types of hemolytic jaundice with splenomegaly are a chronic enlargement of the spleen, existing with an acholuria, non-obstructive jaundice and anemia, frequently paroxysmal in character and varying in intensity. Increased blood destruction is indicated by increased urobilin in the urine, and various characteristic changes are found in the blood; the red cells show diminished resistance to hypotonic salt solution; there is an increased number of reticulated cells with vital staining, and in the acquired form the phenomenon of auto-agglutination of the red corpuscles. In the congenital form the subjects are more often icteric than sick, while the acquired form is usually ushered in by a definite attack of sickness, the anemia becomes more grave, and the patient is distinctly more anemic than jaundiced. The congenital form seems to be more of an inherited dystrophy of the hemopoietic system, rendering the red blood cells more easily destructible. We have collected reports of eight necropsies and seven splenectomies which showed chiefly congestion of the spleen, especially of the pulp cords, with increased pigment and macrophages. Since therapeutic measures have been so ineffectual, splenectomy seems to offer the most hope for improvement or cure and should be considered, with due regard to conservatism, in all these diseases in which there is evidence of increased blood destruction referable to the spleen. In early Banti's disease and hemolytic jaundice the results of splenectomy have been excellent. In pernicious anemia, although improvement has followed in some cases, the value of splenectomy is more dubious, and this grave operation should be tried only when the indications are clear and other methods have proved unavailable.

Occurrence and Significance of Melituria in Infants Suffering from Nutritional Disorders

Dr. Oscar M. Schloss, New York: Sugar which has been used in metabolism is carried by the general circulation, and it is obvious that sugar which appears in the urine is derived from the blood sugar. Normal blood sugar in infants ranges from 0.07 to 0.11 per cent., figures practically identical with those that obtain for adults. There is a tendency for the blood sugar to maintain a constant level, but striking changes may occur following the ingestion of carbohydrate food. There is often a definite increase in the blood sugar shortly after a meal which reaches its maximum in from one and one-half to two and one-half hours and then decreases. This increase may be effected by starch as well as sugar, though the increase is slower and to a lesser degree. Owing to this fact the blood used for examinations was withdrawn about three and one-half hours after a meal. There is a distinct relationship between increased blood sugar and melituria. As a rule a continued increase in blood sugar leads to an excretion of sugar in the urine, although this effect may not be immediate. Often the hyperglycemia precedes the melituria for some time. It seems safe to assume that hyperglycemia means a disturbance in the balance between mobilization and consumption of sugar and often signifies a decreased power of burning sugar, provided the patient is afebrile and the diet normal. Most of the early writers considered that the sugar found in the urine of infants suffering from gastro-enteric disorders was lactose derived from the food. Finkelstein and Meyer attached great importance to melituria in nutritional disorders. They divided the cases into two groups: 1. Those in which the appearance of lactose in the urine was considered as indicative of an intestinal lesion through which lactose was absorbed before it was split by the inverting enzymes of the intestinal secretion. 2. When galactose was found in the urine, and it was thought that the underlying cause was a diminished sugar tolerance, the liver probably being at fault.

Our work comprised the study of the blood and urine of 235 infants. The preliminary tests were made by the reagents of Benedict and Nylander, and if the reducing substance was present in sufficient quantity, tests were carried out to determine its nature. There were forty normal infants whose blood sugar ranged from 0.068 to 0.11 per cent. The remaining 195 cases represented nutritional disorders ranging from the milder disturbances to those of severe intoxication. For convenience the cases were divided into mild, moderate and severe. There was an association between the increased blood sugar and the presence of sugar in the urine. As a rule, the cases with melituria showed hyperglycemia. In most instances the percentage of sugar in the urine ranged from 0.05 to 0.1 per cent. In such cases a determination of the nature of the sugar with any degree of accuracy was impossible. In twenty-seven cases the urine at some time contained 1 per cent. or more of sugar and further tests were made to determine its nature. These examinations showed that the sugar was usually galactose or dextrose. Lactose occurred, but not alone, it being always associated with galactose.

The important facts brought out are, therefore: 1. Melituria is usually accompanied by an increase in blood sugar. 2. The sugar in the urine is a monosaccharid. This indicates that a gross lesion of the intestine is not a direct cause of the melituria, but rather that the direct cause is a lowered tolerance to sugar. Our test to determine this tolerance shows definitely that there is a lowered tolerance to sugar in the nutritional disorders.

THE COLLEGE OF PHYSICIANS OF PHILADELPHIA

Meeting held Nov. 4, 1914

The President, Dr. James C. Wilson, in the Chair

Pain and Tenderness in Diseases of Spinal Cord, and Their Surgical Treatment

Dr. Charles A. Elsberg, New York: Little attention has been given to the neural origin of abdominal pain. Operations have been performed for supposed gastric disease when the real trouble was gastric crises in the course of tabes. Two patients have been sent into my service with the diagnosis of acute appendicitis. In both instances the patients had Pott's disease with irritation of spinal nerve roots, and areas of skin and muscle tenderness in the right iliac region. I have records of three patients in whom various operations had been performed who were finally found to have a spinal tumor or a neuritis of the nerves of the cauda equina. Another patient operated on for supposed gangrene of the toes, with severe pain shooting down the leg, was finally relieved by an operation for spina bifida occulta. To understand the distribution of painful symptoms in the extremities it is of value to remember the anatomy of the spinal nerve roots. A tumor may press on some of the nerve bundles without compressing the entire spinal root. I removed an extramedullary tumor of the spinal cord between the seventh and eighth cervical segments in a case in which the first and for a long time only symptom was a painful pin and needle sensation in the index finger of the right hand. The tumor was found to have pressed on only the lower nerve root bundles of the seventh cervical posterior root. From several cases of this kind I feel justified in stating that of the nerve bundles that make up the seventh cervical posterior root, the lower supply the index finger and the upper the thumb. In my last hundred laminectomies for spinal disease I have performed six operations on patients who had been treated for long periods for abdominal symptoms. In every case of indefinite abdominal pain and tenderness it is advisable to make certain that we are not dealing with a cutaneous hypersensitiveness which so often simulates real abdominal tenderness.

DISCUSSION

Dr. Charles W. Burr: In a patient seen some years ago the only symptom present was diffuse pain in the right arm. Later there was slight wasting in the muscles around the thumb. The pain was later replaced by painful anesthesia accompanied by marked wasting and gradually increasing palsy in the whole arm. After some time death ensued and at post-mortem there was found in the cervical region a long flat growth that had entered the nerve roots, first the posterior, causing only pain and then the anterior, causing pain and wasting. Had we but known the cause of the trouble, operation would have saved the patient a great amount of pain and probably her life.

Dr. Charles H. Frazier: It is too commonly supposed that pain is a constant and conspicuous symptom of spinal tumor, referred to the peripheral distribution of the segment involved. A number of cases of spinal tumors have been observed in which throughout the course of the lesion there was absolutely no pain. The widely varying results of rhizotomy would seem to throw some doubt on the present conception of the pathways of afferent impulses, and suggest the possibility of the ventral roots having some part in the carrying of afferent impulses. Such a hypothesis has been already advanced by Kidd. Whenever possible a therapeutic test should be applied before operation in order to determine whether interruption of the sensory impulses does not relieve pain. Spiller's suggestion of resection of the anterolateral column of the cord is a most valuable one and appeals to me particularly in cases of uncontrollable pain of the lower extremities, and more especially, because the operation does not necessitate the removal of as many laminae of the spine as would be necessary to cut the required number of lumbar and sacral roots. In the limited number of root resections for pain in my clinic there have been no fatalities, but in a larger series, performed by a number of surgeons, the mortality rate has been estimated at 10 per cent. This is too high. The risks of the operation should be materially reduced. The low rate of mortality in my experience with laminectomy I attribute chiefly to intratracheal anesthesia and to the use of the stovain block.

Dr. Charles A. Elsberg: I am not very enthusiastic about cutting posterior spinal roots in the treatment of the crises of tabes. Professor Foerster states that the only way to get a fairly good result is by an enormous laminectomy, cutting from the fourth or fifth dorsal down to the twelfth, and that even then the result is not certain. I have seen temporary benefit from the injection of stovain into the spinal canal. Laminectomy is an operation in which the mortality should be very small and one which a surgeon after a little experience should be able to do easily. In ninety-eight successive cases we have had no mortality.

Pathology of Tabetic Ocular Palsies

Dr. William G. Spiller: The ocular palsies of tabes have been regarded by some investigators as nuclear in origin, and the syphilitic ocular palsies as of nerve origin. This view may be disputed. I have studied by microscopic serial sections a typical case of tabes with complete internal and external ophthalmoplegia. The ocular nerves and their

Society Proceedings

COMING MEETINGS

American Association of Anatomists, St. Louis, Dec. 28-30.
American Physiological Society, St. Louis, Dec. 27-30.
Society of American Bacteriologists, Philadelphia, Dec. 29-31.
Western Surgical Association, Denver, Dec. 18-19.

JOINT MEETING OF THE NEW ENGLAND PEDIATRIC SOCIETY, THE PHILADELPHIA PEDIATRIC SOCIETY AND THE PEDIATRIC SECTION OF THE NEW YORK ACADEMY OF MEDICINE

Held in New York, Nov. 5, 1914

Dr. William M. Polk in the Chair

Experimental and Clinical Studies in Hemolytic Jaundice, with Special Reference to the Effects of Splenectomy

Dr. Edward B. Krumbhaar, Philadelphia: The experiments which Dr. Pearce, myself and our colleagues have been carrying on for the past three years, though at first concerned with the relation of the spleen to hemolytic jaundice, soon opened up to us the broader problem of the relation of the spleen to blood formation and destruction in general. Our first experiments confirmed and elaborated the earlier observations of Banti and Joannovics that it was more difficult to produce jaundice by means of hemolytic serum in splenectomized than in normal dogs. Attempts to explain the cause of this phenomenon, which was directly related to clinical splenectomy for the cure of various conditions associated with hemolytic jaundice, led us to study the blood changes following splenectomy. We found that anemia always developed, reached the maximum about the third week and dropped to normal in about ten months. Pearce, Karsner and Peet find that the resistance of the red cells is increased after splenectomy both to hypotonic salt solution and to immune serum. Austin noticed that the greatest resistance to jaundice occurred at the same time as the greatest anemia developed. I have found the same resistance and have concluded that the phenomena were partly due to the more resistant erythrocytes, and partly to the fact that less blood is destroyed because there is less blood to be destroyed. In testing the blood-forming powers of the spleen by making a comparison of the blood going to and coming from the organ, some authorities assert that they have found more red cells, white cells and hemoglobin in the splenic vein, but our experiments along these lines were negative and it seems that we must accept the dictum that red cells at least are formed only in the bone marrow. Asher and his pupils have offered as an explanation of the anemia following splenectomy that increased amounts of iron are lost through the stools, but here also our experiments have failed to confirm such an explanation. We found, however, that injection of splenic extracts intraperitoneally have a marked temporary effect in raising the erythrocyte count, the leukocytes and hemoglobin, which is presumably due to the stimulation of the bone marrow. A possible explanation of the anemia following splenectomy is, therefore, that the bone marrow is deprived of a stimulating hormone, and the explanation of the later recovery from the anemia may be found in that the lymph-nodes found enlarged after splenectomy have presumably taken over some of the function of the spleen. Although splenectomized dogs showed less tendency to jaundice when hemolytic agents were administered, nevertheless such agents caused a greater fall in the blood counts, a more lasting damage, and a greater fragility of the red cells than in normal dogs. Apparently the lessened tendency to jaundice is connected in some way with the anemia caused by splenectomy, while the lessened power to recover from the hemolytic anemia must be attributed to the loss of some specific substance from the spleen. Banti has shown evidence of special hemolytic activity of the splenic extracts and of dissociated hemoglobin in the splenic vein, but our observations have failed to substantiate these claims. The unsaturated fatty acids are well known as hemolytic agents and the lessened blood destruction after splenectomy may thus be explained.

A review of the history and a detailed description of the different types of primary splenomegaly with anemia, namely, Gaucher's, Banti's, von Jaksch's and the two types of hemolytic jaundice, the Hayem-Widal, or acquired form, and the Chauffard-Minkowski, or congenital or hereditary form, show that Gaucher's disease has but little in common with the other types of splenic anemia and though the negative character of the symptoms might cause it to be confused with Banti's disease, pathologic examination should admit of a proper differential diagnosis. Although the etiology of Banti's disease is unknown, evidence points to the close causative relationship of the spleen. One would not expect the removal of a largely fibrotic organ to be attended with marked somatic changes, and it is in the earlier stages of the disease that splenectomy has proved most beneficial. The acquired and congenital types of hemolytic jaundice with splenomegaly possess rather characteristic differences and I deem it advisable to follow the Continental custom and consider them as independent conditions. In the congenital type the resistance of the red blood cells to hypotonic salt solution is much diminished, and this furnishes a simple differential test according to the technic which we used.

The cardinal symptoms of these types of hemolytic jaundice with splenomegaly are a chronic enlargement of the spleen, existing with an acholuria, non-obstructive jaundice and anemia, frequently paroxysmal in character and varying in intensity. Increased blood destruction is indicated by increased urobilin in the urine, and various characteristic changes are found in the blood; the red cells show diminished resistance to hypotonic salt solution; there is an increased number of reticulated cells with vital staining, and in the acquired form the phenomenon of auto-agglutination of the red corpuscles. In the congenital form the subjects are more often icteric than sick, while the acquired form is usually ushered in by a definite attack of sickness, the anemia becomes more grave, and the patient is distinctly more anemic than jaundiced. The congenital form seems to be more of an inherited dystrophy of the hemopoietic system, rendering the red blood cells more easily destructible. We have collected reports of eight necropsies and seven splenectomies which showed chiefly congestion of the spleen, especially of the pulp cords, with increased pigment and macrophages. Since therapeutic measures have been so ineffectual, splenectomy seems to offer the most hope for improvement or cure and should be considered, with due regard to conservatism, in all these diseases in which there is evidence of increased blood destruction referable to the spleen. In early Banti's disease and hemolytic jaundice the results of splenectomy have been excellent. In pernicious anemia, although improvement has followed in some cases, the value of splenectomy is more dubious, and this grave operation should be tried only when the indications are clear and other methods have proved unavailable.

Occurrence and Significance of Melituria in Infants Suffering from Nutritional Disorders

Dr. Oscar M. Schloss, New York: Sugar which has been used in metabolism is carried by the general circulation, and it is obvious that sugar which appears in the urine is derived from the blood sugar. Normal blood sugar in infants ranges from 0.07 to 0.11 per cent., figures practically identical with those that obtain for adults. There is a tendency for the blood sugar to maintain a constant level, but striking changes may occur following the ingestion of carbohydrate food. There is often a definite increase in the blood sugar shortly after a meal which reaches its maximum in from one and one-half to two and one-half hours and then decreases. This increase may be effected by starch as well as sugar, though the increase is slower and to a lesser degree. Owing to this fact the blood used for examinations was withdrawn about three and one-half hours after a meal. There is a distinct relationship between increased blood sugar and melituria. As a rule a continued increase in blood sugar leads to an excretion of sugar in the urine, although this effect may not be immediate. Often the hyperglycemia precedes the melituria for some time. It seems safe to assume that hyperglycemia means a disturbance in the balance between mobilization and consumption of sugar and often signifies a decreased power of burning sugar, provided the patient is afebrile and the diet normal. Most of the early writers considered that the sugar found in the urine of infants suffering from gastro-enteric disorders was lactose derived from the food. Finkelstein and Meyer attached great importance to melituria in nutritional disorders. They divided the cases into two groups: 1. Those in which the appearance of lactose in the urine was considered as indicative of an intestinal lesion through which lactose was absorbed before it was split by the inverting enzymes of the intestinal secretion. 2. When galactose was found in the urine, and it was thought that the underlying cause was a diminished sugar tolerance, the liver probably being at fault.

Our work comprised the study of the blood and urine of 235 infants. The preliminary tests were made by the reagents of Benedict and Nylander, and if the reducing substance was present in sufficient quantity, tests were carried out to determine its nature. There were forty normal infants whose blood sugar ranged from 0.068 to 0.11 per cent. The remaining 195 cases represented nutritional disorders ranging from the milder disturbances to those of severe intoxication. For convenience the cases were divided into mild, moderate and severe. There was an association between the increased blood sugar and the presence of sugar in the urine. As a rule, the cases with melituria showed hyperglycemia. In most instances the percentage of sugar in the urine ranged from 0.05 to 0.1 per cent. In such cases a determination of the nature of the sugar with any degree of accuracy was impossible. In twenty-seven cases the urine at some time contained 1 per cent. or more of sugar and further tests were made to determine its nature. These examinations showed that the sugar was usually galactose or dextrose. Lactose occurred, but not alone, it being always associated with galactose.

The important facts brought out are, therefore: 1. Melituria is usually accompanied by an increase in blood sugar. 2. The sugar in the urine is a monosaccharid. This indicates that a gross lesion of the intestine is not a direct cause of the melituria, but rather that the direct cause is a lowered tolerance to sugar. Our test to determine this tolerance shows definitely that there is a lowered tolerance to sugar in the nutritional disorders.

THE COLLEGE OF PHYSICIANS OF PHILADELPHIA

Meeting held Nov. 4, 1914

The President, Dr. James C. Wilson, in the Chair

Pain and Tenderness in Diseases of Spinal Cord, and Their Surgical Treatment

Dr. Charles A. Elsberg, New York: Little attention has been given to the neural origin of abdominal pain. Operations have been performed for supposed gastric disease when the real trouble was gastric crises in the course of tabes. Two patients have been sent into my service with the diagnosis of acute appendicitis. In both instances the patients had Pott's disease with irritation of spinal nerve roots, and areas of skin and muscle tenderness in the right iliac region. I have records of three patients in whom various operations had been performed who were finally found to have a spinal tumor or a neuritis of the nerves of the cauda equina. Another patient operated on for supposed gangrene of the toes, with severe pain shooting down the leg, was finally relieved by an operation for spina bifida occulta. To understand the distribution of painful symptoms in the extremities it is of value to remember the anatomy of the spinal nerve roots. A tumor may press on some of the nerve bundles without compressing the entire spinal root. I removed an extramedullary tumor of the spinal cord between the seventh and eighth cervical segments in a case in which the first and for a long time only symptom was a painful pin and needle sensation in the index finger of the right hand. The tumor was found to have pressed on only the lower nerve root bundles of the seventh cervical posterior root. From several cases of this kind I feel justified in stating that of the nerve bundles that make up the seventh cervical posterior root, the lower supply the index finger and the upper the thumb. In my last hundred laminectomies for spinal disease I have performed six operations on patients who had been treated for long periods for abdominal symptoms. In every case of indefinite abdominal pain and tenderness it is advisable to make certain that we are not dealing with a cutaneous hypersensitiveness which so often simulates real abdominal tenderness.

DISCUSSION

Dr. Charles W. Burr: In a patient seen some years ago the only symptom present was diffuse pain in the right arm. Later there was slight wasting in the muscles around the thumb. The pain was later replaced by painful anesthesia accompanied by marked wasting and gradually increasing palsy in the whole arm. After some time death ensued and at post-mortem there was found in the cervical region a long flat growth that had entered the nerve roots, first the posterior, causing only pain and then the anterior, causing pain and wasting. Had we but known the cause of the trouble, operation would have saved the patient a great amount of pain and probably her life.

Dr. Charles H. Frazier: It is too commonly supposed that pain is a constant and conspicuous symptom of spinal tumor, referred to the peripheral distribution of the segment involved. A number of cases of spinal tumors have been observed in which throughout the course of the lesion there was absolutely no pain. The widely varying results of rhizotomy would seem to throw some doubt on the present conception of the pathways of afferent impulses, and suggest the possibility of the ventral roots having some part in the carrying of afferent impulses. Such a hypothesis has been already advanced by Kidd. Whenever possible a therapeutic test should be applied before operation in order to determine whether interruption of the sensory impulses does not relieve pain. Spiller's suggestion of resection of the anterolateral column of the cord is a most valuable one and appeals to me particularly in cases of uncontrollable pain of the lower extremities, and more especially, because the operation does not necessitate the removal of as many laminae of the as would be necessary to cut the required number of and sacral roots. In the limited number of root re for pain in my clinic there have been no fatalities, a larger series, performed by a number of mortality rate has been estimated at 10 per cent. too high. The risks of the operation should be reduced. The low rate of mortality in my experi laminectomy I attribute chiefly to intratracheal an and to the use of the stovain block.

Dr. Charles A. Elsberg: I am not very enthusiast cutting posterior spinal roots in the treatment of th of tabes. Professor Foerster states that the only get a fairly good result is by an enormous l cutting from the fourth or fifth dorsal down to and that even then the result is not certain. I temporary benefit from the injection of stov spinal canal. Laminectomy is an operation mortality should be very small and one wh after a little experience should be able to ninety-eight successive cases we have had no

Pathology of Tabetic Ocular F

Dr. William G. Spiller: The ocular palsies been regarded by some investigators as nuclear the syphilitic ocular palsies as of nerve origin. may be disputed. I have studied by microscop tions a typical case of tabes with complete external ophthalmoplegia. The ocular nerves nuclei were much degenerated; there was considerable round cell infiltration of the pia, but one of the abducent nerves which was less degenerated than the other showed also less round cell infiltration within the nerve. Round cell infiltration is indicative of the intensity of the syphilitic process. This case would throw doubt on the view that tabetic ocular palsies are nuclear.

DISCUSSION

Dr. Charles K. Mills: It is not at all uncommon for the diplopia often present in early tabes to disappear rather quickly. This would not occur were the palsies due to nuclear degeneration.

Dr. Daniel J. McCarthy: I would ask Dr. Spiller whether in his opinion tabes still exists, or whether all cases of tabes should be grouped together as spinal syphilis. My feeling is that we have distinct cerebral syphilis which reacts to treatment. Apart from this, paresis and tabes do not react, and when once developed are practically incurable.

Dr. W. G. Spiller: We recognize tabes and paresis, but we must regard them as truly syphilitic diseases. Tabes is caused by the degeneration of the posterior roots from the syphilitic poison. There are cases in which a positive diagnosis between spinal syphilis and tabes cannot be made. There are also cases in which the diagnosis between cerebral syphilis and paresis cannot be made, and these cases show how close the connection between cerebrospinal syphilis and the so-called parasyphilitic diseases may be.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Physiology, Baltimore

December, XXXVI, No. 1, pp. 1-76

1 *Effect of Temperature on Action of Thrombin and Antithrombin. W. H. Howell, Baltimore.
2 Orientation of Holothurian by Light. W. J. Crozier, Boston.
3 *Effect of Radiant Energy on Lens and Humors of Eye. W. E. Burge.
4 *Physiology of Stomach. A. B. Luckhardt and A. J. Carlson, Chicago.
5 *Secretory Innervation of Hypophysis. I. Rabens and J. Lifschitz, Chicago.
6 Studies of Autonomic Thresholds. W. L. Mendenhall, Boston.
7 Carotid Blood-Flow in Relation to Intra-Abdominal Pressure. R. Burton-Opitz, New York.

1. **Temperature Action on Thrombin and Antithrombin.**—At temperatures approximating the body-temperature, Howell states, the action of antithrombin is greatly augmented. It is probable that this action is of importance in insuring the fluidity of the circulating blood in animals like the mammals in which the content of antithrombin in the blood is small. The effect of high temperatures (60 to 100 C.) in weakening or destroying the action of thrombin is accelerated greatly by the presence of small amounts of neutral salts (NaCl).

3. **Effect of Radiant Energy on Eye.**—Burge summarizes his observation as follows:

> Radiation from a quartz mercury vapor lamp which is sufficiently intense to coagulate egg albumin, egg globulin, vitellin, serum albumin and serum globulin in one hour does not coagulate the protein of the normal lens or of the vitreous or aqueous humors and hence does not affect the transparency of these structures after a continuous exposure of 100 hours. The region of the ultraviolet spectrum effective in coagulating the egg white lies between 265 and 302 microns. The region most effective lies around 265 microns.
>
> The lens protein can be modified by solutions of calcium chlorid, magnesium chlorid sodium silicate or dextrose too weak of themselves to affect the transparency of the lens so that ultraviolet radiation can precipitate the modified lens protein and hence produce opacity of the lens. The effective region in case of modification of calcium chlorid is from 265 to 302 microns inclusive. The most effective region lies around 265 microns. Analyses of senile cataractous human lenses show that calcium, magnesium, and in lenses from India, silicates are greatly increased in this type of cataract. The assumption is made that the accumulation of these substances modifies the lens protein in such a way that the short waves of the spectrum can precipitate the *protein*, thus producing opacity or cataract. In the case of diabetic cataract the accumulation of sugar in the liquids of the body so modifies the lens protein that the short waves of the spectrum can produce opacity, hence the prevalence of cataract in this disease.
>
> The above named substances, which so alter the lens protein that the short waves can precipitate it, at the same time decrease the fluorescence of the lens. This suggests that there may be some relation between this latter property and the great resistanc of the normal lens protein to ultraviolet radiation. In looking for the cause of cataract it would seem that at least two factors are to be considered, the one, a modification of the lens protein, and the other, radiation of short wave lengths by which this modified protein can be coagulated. Radiation from the infrared, or the visible region of the spectrum cannot coagulate either the *modified* or the *unmodified* lens protein provided the coagulation due to heat be excluded.

4. **Physiology of Stomach.**—According to Luckhardt and Carlson blood from starving animals and animals in pancreatic diabetes transfused into normal animals acts as a temporary stimulus to the gastric hunger mechanism. Excessive hemorrhage is followed by a temporary augmentation of the gastric hunger contractions. Prolonged starvation, pancreatic diabetes and possibly excessive hemorrhage result in the increase of some substance or substances in the blood that act as stimuli to the gastric hunger mechanism.

5. **Secretory Innervation of Hypophysis.**—The results obtained by Rabens and Lifschitz go to show that the presence of secretory nerves governing the activity of the hypophysis cannot be demonstrated by the glycosuria or hyperglycemia methods. The glycosuria resulting from the stimulation of the superior cervical ganglia is undoubtedly due to the effects of prolonged anesthesia and not to an excessive activity of the hypophysis caused by stimulation of a secretory nervous pathway to the gland. The authors suggest that the nerve fibers to the hypophysis described by Dandy may be vasomotor nerve fibers. The fact that no vasomotor nerves have been conclusively demonstrated in the cranial cavity does not prove that such nerves are absent from a complex gland like the hypophysis. And the fact that the anterior lobe has a vastly richer nerve supply than the posterior lobe does not in the least prove that these nerves are of a secretory nature. Stimulation of the cervical sympathetic nerves while the animal is conscious and under physiologic conditions does not produce hyperglycemia, glycosuria or diuresis. In all cases in which the animal is subjected to a crucial operation and prolonged ether anesthesia, glycosuria appears whether or not the superior cervical ganglia are stimulated.

A similar glycosuria occurred when the animal was subjected to mere prolonged anesthesia without even exposing the nerves or ganglia. Subjection to prolonged anesthesia after exclusion of all possible downward impulses to the abdominal viscera through vagus reflexes, with or without stimulation of the ganglia, led to a similar glycosuria. The glycosuria of prolonged ether anesthesia runs a uniform course, the amount of sugar gradually rising to a maximum and then gradually declining. This course is not influenced by the stimulation of the cervical sympathetic nerves, or the superior cervical ganglia.

American Journal of Tropical Diseases and Preventive Medicine, New Orleans

November, II, No. 5, pp. 295-355

8 *Leprosy. Its Treatment in Philippine Islands by Hypodermic Use of Chaulmoogra Oil Mixture. V. G. Heiser, Manila.
9 *Bacteriemic Nature and Laboratory Diagnosis of Leprosy. D. Rivas and A. J. Smith, Philadelphia.
10 Mosquitoes and Sewage Disposal. F. Knab and A. Busck, Washington, D. C.

8. **Chaulmoogra Oil Mixture for Treatment of Leprosy.**—The mixture used in the cases cited by Heiser was prepared as follows: Chaulmoogra oil and camphorated oil, 60 c.c. each; resorcin 4 gm. Mix and dissolve with the aid of heat on a water bath and then filter. The injections were usually made at weekly intervals in ascending doses. The initial dose is 1 c.c. and this is increased to the point of tolerance. The object sought is so to regulate the dose as to prevent reactions of too violent a character. Heiser says that experience shows that this treatment gives more consistently favorable results than any other and it holds out the hope that further improvement may be brought about. It produces apparent

cures in some cases, causes great improvement in many others, and arrests the progress of the disease in almost every instance. He has at present over 20 patients who have become microscopically negative since they began the treatment. The treatment is apparently equally efficacious in all forms of the disease; that is, the tubercular or hypertrophic, the anesthetic and the mixed.

9. **Bacteriemic Nature and Laboratory Diagnosis of Lepra.**—In support of the bacteriemic nature of lepra, that is that *B. lepra* exists in the circulating blood, Rivas and Smith have the following evidence: 1. *B. lepra* is found in the blood collected from healthy parts of the skin which are apparently normal and from which the micro-organisms are usually absent on section. 2. By the acetic acid method, *B. lepra* either singly, in pairs, in masses or in bundles is detected in the venous blood. 3. The presence of *B. lepra* in the form of lepra cells or phagocytosed by endothelial cells and more especially by lymphocytes in the venous blood. And finally, they suggest that the apparent or actual growth (at least temporarily) of *B. lepra* in cultures made from the venous blood may be an indication of the resemblance of leprosy to other bacteriemic diseases.

Journal of Biological Chemistry, Baltimore

November, XIX, No. 3, pp. 305-443

11 Immunization Against Anticoagulating Effect of Hirudin. M. Vera and L. Loeb, St. Louis.
12 Value of Proteins of Cereal Grains and Milk for Growth in Pig, and Influence of Plane of Protein Intake on Growth. E. V. McCollum, Madison, Wis.
13 Effect of Alkali on Permeability. W. J. V. Osterhout, Boston.
14 *Gastro-Intestinal Studies III (Studies on Water-Drinking XXI). O. Bergeim, M. E. Rehfuss and P. B. Hawk, Philadelphia.
15 Influence on Growth of Rations Restricted to Corn or Wheat Grain. E. B. Hart and E. V. McCollum, Madison, Wis.
16 Action of Rennin on Casein. A. W. Bosworth, Geneva, N. Y.
17 Acidosis in Omnivora and Herbivora and Its Relation to Protein Storage. H. Steenbock, V. E. Nelson and E. B. Hart, Madison, Wis.
18 Effective Principle in Thyroid Accelerating Involution in Frog Larva. M. Morse, Madison, Wis.
19 Is Antagonistic Action of Salts Due to Oppositely Charged Ions? J. Loeb, New York.

14. **Gastric Stimulation by Water.**—The authors claim that water (ordinary or distilled), either cold (10.5 C.) or warm (50 C.) as small a volume as 50 c.c. is a very strong gastric stimulant and in certain instances yields an acidity of over 100 c.c. (N/10 NaOH to neutralize 100 c.c. of juice), in less than twenty minutes. In the average normal individual water produces fully as great a stimulation (as measured by acidity and enzyme values) as does an Ewald test meal, and the acidity values follow a similar type of curve. Identical volumes of water introduced into the stomach of the same man during the same afternoon yielded similar acidity values. Under all conditions the increased acidity following water stimulation is accompanied by increased peptic activity, although the two types of values do not necessarily run parallel.

It was impossible to demonstrate any latent period for the human gastric glands. Therefore a prolonged and spread contact with the stomach mucosa is not a necessary preliminary to stimulation, as Pawlow and others have claimed. The introduction of 100 c.c. of distilled water into a stomach made empty by lavage was followed by the removal of samples at one-minute intervals which showed total acidity values of 19.5, 26.0, 49.5, 63.5 and 79.5. In one experiment definite evidence was obtained that 500 c.c. of water left the stomach in ten to twenty minutes after its introduction. In a single instance a very pronounced continued digestive secretion was observed. At least 225 c.c. of gastric juice of relatively high acidity were secreted after an initial stimulus afforded by 50 c.c. of distilled water (50 C.). Since water stimulates the gastric glands to activity when no food is present in the stomach as well as when there is a digestive task to complete, it seems to the authors a waste of glandular energy to drink water between meals. It would seem that water could best further the digestive plan when taken with meals.

Journal of Experimental Medicine, Lancaster, Pa.

December, XX, No. 6, pp. 545-641

20 *Effect of Gentian Violet on Protozoa and on Tissues Growing in Vitro, with Especial Reference to Nucleus. D. G. Russell, New Haven, Conn.
21 *Effect of Various Tissue Extracts on Growth of Adult Mammalian Cells in Vitro. A. J. Walton, London.
22 *Experimental Typhoid Infection of Gall-Bladder in Rabbit. H. J. Nichols, Washington, D. C.
23 *Proteotoxins (Anaphylatoxins) and Virulence. H. Zinsser and J. G. Dwyer, New York.
24 *Method of Counting Actual Number of Purkinje Cells Present in a Given Area of Cerebellum and Its Application in Ten Clinical Cases. F. W. Hitchings, Cleveland.
25 Agglutination Phenomena in Lobar Pneumonia. H. T. Chickering, New York.
26 Successful Cultivation of Skin Epithelium of Adult Frog, Rana Pipiens. E. Uhlenhuth, New York.

20. **Effect of Gentian Violet on Protozoa.**—The fact that embryonic and adult tissue of the frog will grow in vitro in the presence of gentian violet of a far stronger dilution than that necessary to kill many bacteria, as determined by Russell, lends encouragement to efforts now being made by him to apply the observations on the bactericidal effect of gentian violet and allied stains to the treatment of disease. Moreover, the ability of growing cells to rid themselves of this dye would indicate that it may be possible to apply the dye to infected tissue and count on the cells to eliminate the material after its work had been done. In Russell's experiments, for example, successful tissue growths were obtained when gentian violet 1 to 20,000 were used, yet *Bacillus subtilis* will not grow in 1 to 100,000 dilution and grows very badly in 1 to 1,000,000 dilution.

21. **Growth of Adult Mammalian Cells in Vitro.**—Walton found that the majority of tissue extracts stimulate the growth of connective-tissue, but liver extract inhibits it. The extracts are to a certain extent specific in their action on the growth of parenchymatous cells. Some cells are stimulated by one extract and inhibited by another, and those extracts which inhibit one type of parenchymatous cell may stimulate another type. Homogenous and autogenous extracts are equally efficacious in their action on the growth of cells.

22. **Experimental Typhoid Infection of Gall-Bladder in Rabbit.**—The following subjects are considered by Nichols: (1) pathogenicity of a living sensitized vaccine, (2) pathogenicity of first transplant from a living sensitized vaccine, (3) the regular production of lesions, (4) the gall-bladder lesion as a test of immunity, (5) the curative effects of vaccines, and (6) the practical bearing of experimental work. Altogether, ninety-seven animals were used and forty gall-bladder lesions were observed.

Nichols states that Besredka's living sensitized vaccine, given intravenously, does not produce a typhoid lesion of the gall-bladder in the rabbit. The first transplant of this vaccine is capable of producing this lesion. Hence this vaccine is not entirely safe to handle. Regular infections of the gall-bladder have not been produced by carrying a known pathogenic strain on rabbit blood agar, by successive passage through animals, or by the use of freshly isolated strains. No evidence could be demonstrated in the rabbit of the immunity produced in man by vaccination with a whole killed vaccine. Vaccine treatment did not cure the gall-bladder lesions.

Nichols concludes that with the present methods of producing infections in the chimpanzee and the rabbit, neither of these animals is suitable for deciding the problems of the immunization of man by vaccines. These problems must be settled by actual experience with large numbers of men kept under close observation.

23. **Proteotoxins and Virulence.**—The experiments reported on by Zinsser and Dwyer show that proteotoxin (anaphylatoxin) produced with typhoid bacilli and active guinea-pig serum, by the general method of Friedberger, possesses aggressin-like action in that, when injected together with sublethal doses of bacteria, it renders them lethal. This action is not specific, since even when typhoid bacilli are used in its production, the proteotoxin possesses this property not only for typhoid bacilli, but for staphylococci and prodigiosus bacilli, the only other organisms with which the

vaccine to counteract the toxic influence. He cites a number of cases in which the operation caused the disappearance of sugar. A case in point is the following: The patient was a man, aged 53, suffering from gangrenous phimosis, and the surgeon was averse to operation owing to the presence of sugar in the urine. The history showed that during two years there had been increasing frequency of micturition and some loss of weight. Four days before the patient saw Tirard he had been markedly drowsy and had complained of parched mouth and dry tongue. Although the specific gravity when first examined was 1040, it speedily fell after the removal of large gangrenous sloughs, and within a month it was extremely difficult to obtain any reaction for sugar. The sugar ultimately disappeared until the patient had an attack of tonsillitis, when during the high temperature sugar was again found to be present for a short time.

Tirard urges that the adoption of this view should encourage greater readiness to remove gangrenous tissues at an early stage, and that operations of greater magnitude might well be reserved until the quick reduction of sugar has permitted greater liberality of diet.

12. **Treatment of Wounds in War.**—Cheyne points out that the chances of rendering a wound aseptic are comparatively small after twenty-four hours, and practically *nil* after forty-eight hours: indeed, after that time he would not make any attempt to disinfect the wound. If, therefore, the case does not come under treatment within twenty-four hours no one can blame the surgeon or any system of treatment for the septicity of the wound. The reasons given by Cheyne as to why practically all wounds in the present war become septic are: (1) because there is often long and unavoidable delay in collecting the wounded and commencing treatment; (2) because the wounds may be very large, complicated and almost impossible to disinfect thoroughly; and (3) because in a good many cases no attempt is made to disinfect these wounds, or if it is made it is utterly inefficient.

As to the period of time during which it is advisable to attempt disinfection of the wound, Cheyne's opinion is that it is only during the first twenty-four hours that it is at all likely that bacteria can be eradicated, and indeed after twelve hours the result is not at all certain. During the first twelve hours, however, the great majority of wounds, unless they are large and irregular or complicated with extensive comminution of bone, can, he says, be rendered aseptic quite readily and immediately, and if proper precautions are taken afterward will remain aseptic, and thus the troubles resulting from the primary soiling of the wound will be avoided. The first point is to kill not only actively growing bacteria, but also the spores of bacilli. Cheyne prefers phenol to iodin as an antiseptic because it dissolves in the natural oil of the skin and so can extend its antiseptic action down the hair follicles and the orifices of the sebaceous glands. If more than twenty-four or possibly forty-eight hours have elapsed since the infliction of the wound any attempt at general disinfection of the wound would be an injudicious and harmful procedure, and still more so if suppuration has begun. The skin should be cleansed and disinfected and if there is any earth or gross dirt still visible about the wound the tissues involved should be cut or clipped away and the raw surface daubed with phenol. Apart from this, which is only occasionally necessary, Cheyne emphasizes that the important point is to provide the freest possible escape for discharge, and in order to obtain this it is often necessary to enlarge the original openings and to make counter openings. Further, any foreign bodies which are readily accessible should be removed, but at this stage it is not advisable to open up fresh wounds in the deeper tissues in order to hunt for bullets or pieces of shell, for this merely exposes fresh tissues to infection unnecessarily before the body generally has developed its full resisting power. The actual drainage of the wounds must be carried out by the use of as large drainage tubes as can be introduced conveniently with holes of suitable size in their sides; when there are counter openings, pass the tube through from one opening to the other.

As regards dressings in these cases, Cheyne says, aseptic dressings are not only useless but injurious. The septic discharge soaks into them, and decomposes there, and the dressing simply becomes a septic poultice which poisons the wound. Antiseptic dressings are better. Cheyne uses cyanid gauze next the wound with salicylic wool outside. His experience is that it is best to lay only a few layers of antiseptic gauze over the wound to prevent it being soiled by the clothing or blankets, and to apply boracic fomentations and change them frequently. Wherever it is possible, however, in the case of large wounds and those involving bones or joints, constant irrigation with normal saline solution is by far the best method of treatment. The irrigation is at first continued day and night, but as the discharge gets less and the wound begins to heal, boracic fomentations may be substituted during the night, but the irrigation should be continued during the day till healing is nearly complete. Cases in which gangrenous processes set in, a water bath, frequently changed with a little iodin or permanganate of potash in the water is the best treatment.

As to the removal of the missile which has done the damage, if it is present in the main wound, or is doing harm by pressure or otherwise, it should be removed at once, but not uncommonly fragments of shell or bullets pass into the tissues for a considerable distance from the main wound, and if left alone may become encapsuled and not do any harm and the wound of entrance will heal quite well. Such fragments can be removed by a separate incision later. if necessary.

Bulletin de l'Académie de Médecine, Paris

November 3, LXXII, No. 34, pp. 231-242

18 Antityphoid Vaccine Sterilized with Iodin. (Autorisation de préparer et de débiter un vaccin antityphoidique sterilisé par l'iode.) Netter.
19 Large Doses of Chloral in Treatment of Tetanus. Demmler.

November 10, No. 35, pp. 243-258

20 Treatment for Compound Fracture of the Femur. (Du traitement des fractures de cuisse par projectiles de guerre infectées, appareil réalisant la contention de la fracture et le pansement facile de la plaie.) E. Quénu.
21 Surgical Treatment of Wounds of the Nerves. (Note sur l'intervention chirurgicale dans les blessures des nerfs des membres par projectiles de guerre.) H. Walther.

Berliner klinische Wochenschrift

November 2, LI, No. 44, pp. 1757-1780

22 Eczema and Neurodermitis in Children. A. Lehnert.
23 Megalocytes in Anemia. (Zur Frage der diagnostischen Bedeutung hämoglobinreicher Megalocyten.) L. Dünner.
24 Gunshot Wounds of Nerves in the Arms. (Der Kriegssanitätsdienst in Berlin. VI.) E. Froehlich.
25 Technic for Roentgenoscopy of the Viscera. (Einfache Aufnahmetechnik zur Röntgenuntersuchung der Baucheingeweide.) A. Henszelmann.
26 *Blindness from Atoxyl. (Zur Atoxylamaurose.) F. Makrocki.
27 Medical Ethics and Regulation of Medical Practice during Wartime. (Aerztliche Rechtsfragen zur Kriegszeit.) H. Lieske.

26. **Blindness Under Atoxyl.**—The atoxyl was given very cautiously but the patient, a woman of 63, became totally blind after taking 0.725 gm. of atoxyl in all in nine doses in less than two weeks.

Correspondenz-Blatt für Schweizer Aerzte, Basel

October 31, XLIV, No. 44, pp. 1377-1392

28 *Vaccine Therapy in Gonorrhea. (Kritisches zur Vakzinetherapie der Gonorrhoe, zugleich experimenteller Beitrag zur Begründung der "ableitenden" Therapie.) B. Bloch.

28. **Vaccine Therapy of Gonorrhea.**—Bloch has not had as good results with intramuscular vaccine therapy as some have reported, but his experience in forty cases seems to show that the intramuscular and subcutaneous methods have no untoward by-effects as a rule. Only a few instances of complications have been published in which the preceding vaccine therapy might be incriminated. In these cases epididymitis or salpingitis, keratitis, a rash, transient cerebral symptoms or parenchymatous nephritis, developed in one case each. Bloch administered the vaccine in a few cases by intravenous injection and the results surpassed his highest anticipations. The reaction was very severe, both local and general, but the rapid subsidence of the gonorrheal arthritis and epididymitis, mucosa processes and pros-

tatitis testified to the therapeutic influence of the procedure. The idea occurred to him that the intense reaction—rather than any specific influence—was responsible for the benefit. To test this he treated three other patients with unusually severe gonorrheal arthritis by intramuscular injections of antityphoid vaccine. The febrile reaction was followed by prompt subsidence of the joint symptoms and finally a complete cure. Bloch does not venture to generalize from these three cases, but he thinks they sustain Gerhardt's statements in regard to the possible favorable influence of intercurrent infectious diseases on the course of chronic affections. (Summarized in The Journal, 1912, lix, p. 2194.) Such experiences cast doubt on the specific nature of certain reactions; antibodies against both typhoid and gonococcus infection, for example, are liable to be generated together. It sustains the old theory of revulsion and counter-irritation and suggests an explanation for the benefit reported from tuberculin in various supposedly non-tuberculous diseases.

Deutsche medizinische Wochenschrift, Berlin

October 29, XL, No. 44, pp. 1905-1928

29 *Treatment of Tetanus. V. Czerny. Concluded in No. 45.
30 *Subcutaneous Injections of Magnesium Sulphate in Tetanus among the Wounded. A. Falk.
31 Gunshot Wounds of the Lungs. (Lungenschüsse.) A Schmidt.
32 To Hasten Healing of Wounds. (Sparsame und beschleunigte Wundbehandlung im Kriege.) G. Ledderhose.
33 Injury of the Ears at the Front. (Die ohrenärztlichen Aufgaben im Kriege.) E. P. Friedrich. (Ohrenerkrankungen im Felde.) W. Kümmel.
34 Technic for Taking Medical Photographs. (Zur Technik der medizinisch-photographischen Aufnahme.) A. E. Stein.

29. **Tetanus.**—Czerny states that half of all the wounds that come into his hands are the jagged tears made by shrapnel and that tetanus threatens to decimate these wounded. There were 29 cases at Heidelberg alone up to the end of September. The fine hospital trains which make such an imposing display at expositions are unable to care for even a tenth of the wounded in the present gigantic battles. The wounded have to be taken to the rear in freight trains that have brought horses and other supplies to the front. There is no time to clean them properly and Czerny urges that two or three empty cars be carried along so that these can be cleaned and the wounded then transferred to the cleaned ones on the trip. By such care during the transportation it may be possible to ward off tetanus. In September he had four cases of tetanus that had developed on the way although the journey lasted only two days, and now the distance to be covered sometimes requires an eight-day journey. He cites Larrey's observation during the Napoleon campaigns that sudden changes in temperature and bad conditions in regard to transportation increased the number of cases of tetanus, and Czerny adds that the recent cold and wet weather has probably contributed to the increasing prevalence of lockjaw.

In treatment he suggests that as the tetanus toxin is destroyed by heat, it might be possible to sterilize the wound with superheated air or diathermia. Iodoform and Peruvian balsam, he says, might likewise check the growth of the bacteria. He thinks that primary amputation should not be rejected so absolutely as is the rule now. Two of his tetanus patients recovered after amputation. A third died without the contemplated amputation and necropsy revealed that the limb had been shattered much more seriously than its aspect revealed. All wounds should be given preventive antitetanus serum treatment when tetanus is prevailing; he had a patient once who died of acute trismus the sixth day after he had scratched his nose on the thorn of a rose. The wounded should be protected against jars, drafts and nervous shocks. A preventive injection of antitetanus serum should be given the same day as the injury, especially if it is a shell wound. He reiterates that local muscular spasm in the vicinity of the wound is often the first sign of trouble.

30. **Subcutaneous Injection of Magnesium Sulphate.**—Falk anesthetized the spot first with subcutaneous injection of 2 or 3 c.c. of a 1 per cent. solution of novocain, and then injected the 30 per cent. solution of magnesium sulphate. With inadequate doses, the spasms were exaggerated. If they did not subside spontaneously, they were controlled with chloral or another injection of the sulphate. The dose had to be 5 or 6 gm. to show any effect in the mild and moderately severe cases. No injurious by-effects were observed with single doses of 9 gm. up to a daily dose of 24 gm. One patient had 20 gm. given for six days in succession with good effect. In the very severe cases it is well not to be too timid with the dosage. As much as 12 gm. was given at one time in some cases without apparent harm. Under the magnesium the spasms relaxed in about an hour so that the patient could be raised to a sitting position and fed. Mild doses of chloral and morphin were given with the magnesium at times, although it was constantly borne in mind that the action of other drugs superposed on the magnesium might further depress the respiration function. An average of three injections were made in the twenty-four hours, as the symptoms returned, when the patients complained that their chests felt tight or they could not swallow. This feeling of tightness in the chest was generally the precursor of severe convulsions, and hence it calls for vigorous dosage.

Deutsche Zeitschrift für Chirurgie, Leipzig

August, CXXXI, Nos. 1-2, pp. 1-188

35 Operative Treatment of Cleft Palate. (Die Gaumenspalte. Die verschiedenen bisher angewandten Operationsmethoden und deren Klassifikation.) R. Drachter.
36 Torsion of Hour-Glass Stomach. (Volvulus ventriculi bei Sanduhrmagen.) R. Richter.
37 Operative Treatment of Pulmonary Tuberculosis. (Pneumolysia interpleuralis.) F. Torek (N. Y.); (Anatomisch technische Studie zur Frage der Pneumolyse.) G. Mertens.
38 Intestinal Cystoid Pneumatosis. R. Faltin.

Monatsschrift für Geburtshülfe und Gynäkologie, Berlin

August, XL, No. 2, pp. 187-330

39 Advanced and Full-Term Extra-Uterine Pregnancy. W. Beckmann.
40 *Extra-Uterine Pregnancy Ruptured in the Early Months. J. Olow. Continued from No. 1.
41 Aims and Technic of Thyroid Treatment. G. Schmauch.
42 Properties and Uses of Radio-Active Substances. A. Eder.
43 Incubator Treatment of Prematurely Born and Weak Infants. H. Betke.
44 Gynecology and Psychiatry. B. S. Schultze.

40. **Ruptured Extra-Uterine Pregnancy.**—Even in acute cases of ruptured extra-uterine pregnancy some authors advise expectant treatment, for they hold that if the patient does not die immediately she is apt to survive without an operation, which is therefore unnecessary. Even among those who admit the advisability of operating there is a dispute as to whether it should be immediate or deferred. Many American physicians advocate the latter plan. Others hold that each case should be treated individually, which is equivalent to expectant treatment with later secondary operation. When it comes to the advanced cases, there are still more operators who advise late operation or none at all. Olow advises immediate operation as a rule in all cases. He holds that intraperitoneal hemorrhage from any cause requires an immediate operation. It is impossible to decide which cases will recover if left alone. The advocates of deferred operation do not wish to operate in shock, but he believes that shock in extra-uterine pregnancy is as a rule due to the anemia, and will, therefore, increase rather than decrease. In the advanced cases the patient is always in danger of renewed hemorrhage if the operation is not performed, and this danger more than offsets the advantage of waiting for recovery from the anemia of the first hemorrhage. To show the advantages of routine operating over individualistic treatment in advanced cases, he compares his sixty-four cases with those of Scanzoni, who advocates individualistic treatment. Comparison of the figures shows that the results of operation are fully as good with reference to life, capacity for work and for conception, etc., and much better with reference to the time required for recovery.

Münchener medizinische Wochenschrift

November 3, LXI, No. 44, pp. 2161-2196

45 Congenital Status Thymo-Lymphaticus; Three Cases. H. Schridde.
46 Cosmetic Depilation. (Die Entfernung des Frauenbartes.) K. Unna.

47 Fatal Male-Fern Poisoning in a Clinically Latent Case of Addison's Disease. (Filixvergiftung.) F. Schotten.
48 Comparative Dosage of Roentgen and Gamma Rays. W. Gerlach.
49 Nervous and Mental Disturbances among Combatants. (Nervöse Erkrankungen bei Kriegsteilnehmern.) R. Wollenberg.
50 Antitetanus Serum. (Zur Heilserumbehandlung des Tetanus.) A. Heddäus.
51 Circular of Directions before Naval Battles. (Leitsätze für die erste Behandlung von Seekriegsverletzungen.) M. zur Verth.
52 Roentgen Examination at the Front. (Röntgenuntersuchungen im Kriege.) G. Loose.
53 Spectacles for the Gunners. (Schiessbrillen.) F. Schanz.
54 Surgical Experiences in the Field. (Chirurgische Beobachtungen und Erfahrungen im Felde.) H. Schlange.

Wiener klinische Wochenschrift, Vienna

November 12, XXVII, No. 46, pp. 1471-1500

55 *Experiences with Gunshot Wounds of the Skull. (Hirnschüsse.) O. Marburg and E. Ranzi.
56 *Gunshot Aneurysms; Thirteen Cases. H. v. Haberer.
57 War Wounds of the Eyes. (Kriegsverwundungen des Auges.) S. Bernheimer.

55. **Gunshot Wounds of the Skull.**—Marburg and Ranzi conclude from their experience with thirty-three cases that operative treatment is required for wounds from bullets striking at a tangent if there is evidence that the bone has been depressed and there are clinical symptoms of irritation or functional deficit. Also in cases of direct penetrating wounds when the projectile is close to the surface. Deep-seated projectiles can also be removed if severe symptoms develop, but the outlook is not very promising. On the other hand, prolapse of brain tissue indicates a more severe and diffuse brain process, causing edema or swelling of brain tissue, and the prospects are so bad that operative intervention is not advisable as the trouble is too generalized.

56. **Gunshot Aneurysms.**—Von Haberer gives an illustrated report of thirteen cases of gunshot aneurysm and emphasizes the importance of waiting for the virulence of the germs to become attenuated when the traumatic aneurysm has become infected. He condemns any attempt to operate as long as there is the slightest discharge from the wound, unless one's hand is forced by serious symptoms. In two of his cases there were no signs of infection but the pain was so intense that he operated without further delay, during the first three weeks. In the four other non-infected cases he waited until the fifth or sixth week. In the infected cases, the course was more favorable in those operated on without too long delay, and he thinks that the technic is of greater moment than the interval since the development of the aneurysm. He exposes the artery above and throws a loop of thread around it, but does not apply a constricting band to shut off the circulation from the limb. With the loop of thread he is prepared for all contingencies and can shut off the flow of blood at will, while the retention of the circulation otherwise is a great advantage.

In some cases a peculiar contraction of the knee was the first sign to call attention to the popliteal aneurysm; in others isolated radial paralysis was the first symptom of an axillary aneurysm. In still other cases sensory disturbances gave the first warning. The aneurysm may not develop for some time after the wound. In several instances the men were taken from the train already started on their way back to the front, apparently entirely cured of their wound from a bullet passing through a limb or the axilla. All his patients promptly recovered after the operation, only one, in advanced sepsis when first seen, required amputation. In one case the bullet entered the cheek and passed out through the neck on the other side causing an aneurysm involving the internal carotid and the jugular vein. There was a tendency to paralysis on the side of the entrance of the bullet, but this gradually subsided after the operation.

Riforma Medica, Naples

September 19, XXX, No. 38, pp. 1037-1064

58 *Post-Traumatic Nervous and Mental Affections. (Sulle neuro-psicopatie post-traumatiche.) L. Bianchi. Commenced in No. 37.

September 26, No. 39, pp. 1065-1092

59 *Post-Infectious Pituitary Syndrome. (Sindrome ipofisaria adiposo-genitale post-infettiva.) R. Massalongo and P. Piazza. Commenced in No. 38.
60 *Diseases of the Blood-Producing Organs with Enlargement of the Spleen. (Sulle emopatie splenomegaliche. VIII.) G. Rummo.

October 3, No. 40, pp. 1093-1120

61 Mongoloid Idiocy. (3 nuovi casi d'idiozia mongoloide osservati a Cagliari.) M. Manca.
62 Improved Staining Technic for Sections. (Le colorazioni su sezioni libere non sparaffinate.) E. L. Tocco.

58. **Traumatic Nervous and Mental Affections.**—Bianchi emphasizes the difference in the course of post-traumatic neuroses and psychoses according as the patient has a claim for an indemnity or not. When there is no question of an indemnity, he usually recovers promptly and completely, but when there is a claim for damages or a pension pending, this keeps alive the consciousness of the injury even in the most upright. Those inclined to malingering at first may actually convince themselves in time of the truth of their statements, and really develop the neurotic symptoms assumed at first.

59. **The Hypophysis Triad: Obesity, Genital Disturbances and Disease in the Pituitary Body.**—In the three cases related, a man of 26 and two women of 17 and 40, previously apparently normal, became obese during convalescence from pneumonia or typhoid, the weight rapidly increasing to actual pathologic proportions and menstruation ceasing. The clinical picture seemed to be the same as that described by Fröhlich as the adipose-genital hypophysis syndrome. No tumor can be detected in the pituitary region and the trouble seems to be the result of the toxic-infectious influences from the pneumonia or typhoid on the pituitary body, arresting or perverting the internal secretion of the posterior lobe. Cases are on record in which the morbid cause was apparently in the adrenals, the genital glands or the thyroid, but the pituitary body takes the lead in this respect. The cases described confirm anew the functional interaction or synergism between the pituitary body and the genital glands. In acromegaly (syndrome resulting from excessive hypophysis functioning) there are phenomena suggesting hyperfunctioning on the part of the genital glands, while in the above adipose-genital hypophysis syndrome, the trouble is due to deficient pituitary functioning. Degeneration or sclerosis from infectious-toxic influences is liable, as well as a tumor in the pituitary body, to induce the hypophysis triad syndrome. This assumption is sustained by the gradual retrogression of the obesity in the case of the older woman under systematic treatment with extract of the posterior lobe of the pituitary body. She lost weight rapidly and diuresis increased, but the arrested menstruation did not reappear. The two other cases date from the era before introduction of organotherapy.

60. **Diseases of the Blood-Producing Organs with Enlargement of the Spleen.**—This article is the eighth of a series of clinical lectures on this topic at the bedside of patients. Rummo takes up in turn the leukemias, Banti's disease and other affections involving the blood-producing organs, and discusses the differentiating points and the treatment.

Hospitalstidende, Copenhagen

November 11, LVII, No. 45, pp. 1345-1368

63 Paratyphoid Intoxication; Fifty Cases. (Epidemien paa Frederiksholms Kanals Kaserne 1912.) K. Lunn.

Ugeskrift for Læger, Copenhagen

November 5, LXXVI, No. 45, pp. 1931-1962

64 *Enlarged Glands with Chronic Rheumatism of the Joints. (Om Svulst af Kubitalglandlerne ved Polyarthroitis chronica rheumatica.) V. Ellermann.

64. **Enlarged Glands with Chronic Joint Disease.**—Ellermann relates that he found the spleen and numerous lymph-glands enlarged in a case of subacute polyarthritis in a child in 1909, and since then he has systematically examined for enlarged glands all his patients with joint trouble. Excluding all dubious cases and those with venereal disease, tuberculosis and uricacidemia, he lists twenty-eight cases of rheumatism in the joints of nine months to seven years' duration. In 50 per cent. the cubital lymph-nodes were enlarged. In normal conditions these glands are not palpable, and they are seldom enlarged with other affections.

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. LXIII, No. 26 · Chicago, Illinois December 26, 1914

ORTHOPEDIC SURGERY

ITS SCOPE AND ITS FUTURE *

LEONARD W. ELY, M.D.

SAN FRANCISCO

The practice of medicine embraces all branches of the healing art, and has no natural boundaries within itself. No man or set of men can appropriate a portion of it, claim it as private property, and warn trespassers off. Medicine is like the surface of the earth; what belongs to one body of men to-day may belong to another to-morrow. The fit shall take what the unfit cannot hold. Constant change is the symbol of life, and distinguishes scientific from sectarian medicine.

Specialties spring up in answer to a demand for concentration, for no one man can cover the entire field. All knowledge that the student unearths becomes, not his property nor the property of those associated with him in a similar line of work, but the property of the entire medical profession.

So long as a specialty is contributing to the advancement of knowledge, it tends to hold its ground, and to advance its borders. When it stops, other specialties encroach on it. It must take up new ground to avoid absorption either piecemeal by other specialties, or bodily by general medicine and by general surgery. Such a change of ground we have witnessed recently in gynecology. Whether the gynecologists can maintain their new position remains to be seen. If they succeed to the field of abdominal surgery, they will succeed to it, not by claiming that they are entitled to it, but by demonstrating that they are best equipped to hold it. When in my childhood's happy days I would say to my esteemed parent that I was "entitled" to this or to that, he would answer: "My son, you are entitled to just what you can get."

Orthopedic surgery was born to a strenuous life, and has held its borders, never sharply defined, by constant struggle. Its right to the name of a specialty, as you know, is still disputed. It is not recognized generally in medical schools as worthy of a faculty chair, and in many large communities it is not represented exclusively. Its pioneers devoted themselves largely to perfection of mechanical devices, and to accumulation of clinical data, but this knowledge has been appropriated quite rightly by our confrères, who are capable of applying much of it reasonably well with the aid of a skilled mechanic. We have no exclusive title to it. It does not "belong" to us.

We cheerfully acknowledge the remarkable work of the early orthopedists, but we shall gain nothing by pointing back to it. Their deeds reflect no luster on us. To dwell on former greatness is a symptom of degeneracy.

No one can say what our future will be, but that we are in the midst of a change, not on the verge of one, is evident. See what even now is taking place within our ranks. Compare our programs with those of orthopedic meetings of twenty years ago. Work of most diverse kinds is laid before us, demanding recognition and giving an intimation of the modern conception of the scope of orthopedic surgery.

Some there are who maintain that what was good enough for our predecessors is good enough for us. While we may not agree with them unreservedly, it will be well not to neglect that line of endeavor which gave our specialty birth. We must remember, however, that this branch of our work is shrinking constantly. Pott's disease formerly "belonged" to us without question. Orthopedists devise operations for ankylosing the spine, and the general surgeon invades our field—a good example of the changing boundaries of medicine.

Many, imbued with the scientific spirit, and impatient of didactic statement, devote themselves to the task of proving what we are wont with great complacency to regard as established truth, and they maintain with some fervor that much of it is not only not established, but is not even true. We must listen to them, though their discoveries throw into the scrapheap the theories gained by years of hard work. By animal experimentation and by laboratory investigation they will put our knowledge of the diseases of the body framework on a sound basis. Here surely lies part of the work of orthopedic surgery in the future.

The specialty must be stripped of every rag of the garment of mysticism which so persistently clings to it.

Diseases of bones and of joints furnish many of the baffling problems of modern medicine. They affect tissues whose histology, physiology and pathology are almost unopened books. We cannot understand disease in tissues of whose structure and function we are ignorant. Here is a work to fire the imagination of the young. A few years spent in patient investigation may bring more lasting renown than a lifetime of clinical observation.

We have been too ready to draw conclusions without sufficient foundation of fact. One of the great needs in orthopedic surgery is the accumulation of solid facts.

Some diseases of bones and joints are said to "belong" to the general surgeon, others to the internist, but the field is open to all, and is almost unplowed.

---

* Chairman's address, read before the Section on Orthopedic Surgery at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, June, 1914.

A subject, until recently sadly neglected, now forces wide attention. I allude to fractures and dislocations. The general surgeon claims them. They are his if he can hold them. The orthopedist maintains that his mechanical training gives him greater skill in their management. He must demonstrate his skill: He has done so in some instances, notably in congenital dislocations and in certain fractures about the hip and shoulder. The vogue of open treatment of fractures may be interpreted as a reaction against the slipshod methods of the past. It will stimulate at least to more exact conservative treatment.

Functional disorders are becoming fewer in number as an organic base is found for many of them. Some orthopedists maintain that an error in mechanics of the body framework is responsible for certain of these diseases. Their views, while in many instances still largely theoretic, are worthy of a respectful hearing, but not, let me remind you, of acceptance until they are definitely proved. Let us beware the wiles of those brilliant men who urge us to cut loose from sound pathology and scientific proof, to follow them along the easy paths of attractive speculation. These paths lead to confusion.

In other instances an organic cause has been established. The orthopedic surgeon finds one for "idiopathic" sciatica and lumbago, and for intercostal neuralgia. Whose rights does he infringe thereby? Certainly not those of internist or neurologist.

Some regard orthopedic surgery as a narrow specialty. To me it appears potentially the broadest in medicine. These are but a few of the possible fields of activity. Orthopedic surgery is what we make it, and in brief includes everything that we can do better than others.

The future is in the hands of the younger men. Trained for scientific research as we never were, and starting where we finish, they shall climb the heights of knowledge which our feeble eyes see but dimly in the distance. Let us applaud bravely when they bring the structures which we have built up crashing about our ears. This is progress.

"Not as though I had already attained, either were already perfect; but I follow after——. I count not myself to have apprehended, but this one thing I do: Forgetting those things which are behind, and reaching forth unto those things which are before, I press toward the mark."

Lane Hospital.

Habit as a Pathological Factor.—The "bad habits" which are so characteristic of the various psychoneuroses may find their counterparts in perversions of the structural activities of the cells—that is, in bad habits of body (cachexias). Thus, for example, we find a tendency to the laying on of fat (lipomatosis, adiposis dolorosa, etc.)—i. e., to the formation of a tissue less highly organized than the normal—frequently associated with absence of the reproductive function (e. g., following the menopause, castration, etc.), The meaning of this is that function must go on somehow, and, in default of the "discontinuous growth" (reproduction) which normally succeeds ordinary "continuous" growth when maturity is reached, the individual, unless he has found some other active outlet for his energies, tends often, as the saying is, to "run to fat." Any one of the separate organs, also, which fails to express its normal capabilities is apt to begin to energize on a subnormal plane; witness *fibromyomas in the non-functioning uterus*. . . . A bodily habit, whether bad or good, is a group of cellular activities which have evolved together and grown into a complex which . . . is difficult to break up.—Arthur J. Brock, *Edinburgh Med. Jour.*

A PLEA FOR A MORE EXTENSIVE OPERATION IN CANCER OF THE BLADDER*

ARTHUR L. CHUTE, M.D.
BOSTON

After considering various subjects as possible topics for my address, I chose the one concerning which I really can give you fewest facts. I hope, however, that these few facts and the suggestions to which they give rise may arouse you to renew your attack on cancer of the bladder along lines that differ a little from those which we have in the main been following.

In my opinion there is no chapter in urinary surgery that is so absolutely discouraging as that which deals with our end-results—our so-called "cures" in cases of malignant disease of the bladder. I will grant you that our palliative treatment is very successful, that we make many of these sufferers very comfortable; but I feel that I am not ready to confess that we are reduced to nothing more than palliation in these cases.

If in any series of cases one mixes in a certain number of papillomatous cases—the large massive ones that have the appearance of a bladder tumor—one can get figures which are not absolutely discouraging. If, on the other hand, we deal with the carcinomatous growths that are primary in the bladder—squamous celled cancers, adenocarcinomas and the mucous cancers of the bladder, the growths which infiltrate and lead to metastases—our ultimate cures are almost none.

In the past few years we have increased very much the extent of our resections for malignant disease of the bladder and we have also made transplantation of the ureters relatively common, carrying out this maneuver whenever there was a reasonable question of the ureters coming into the diseased area. In spite of these more sweeping operations, I believe there is a very definite doubt whether our end-results are any better. Mine I am sure are not. I very much doubt if the number of permanent cures is at all proportionate to the increased immediate mortality of this more extensive operation.

This whole subject has come to me with particular force of late, as I have been studying up my cases of infiltrating bladder growths. I find records of twenty-nine cases, in eighteen of which operation was performed. Of these eighteen patients operated on, there was only one who was without signs of recurrence at the end of three years after operation. I am unable at the present moment to report on this patient's condition as I am not able to get into communication with him; but so far as I know he continues free from symptoms. There is another patient who has been operated on relatively recently, and I do not know that he has a recurrence; in fact, I believe he has not. All the others are either dead or have definite recurrences. I believe and hope that these figures are worse than the average, but fear they do not exaggerate the condition much.

It is wholly unnecessary, before this Section, to emphasize the importance of early diagnosis of cancer of the bladder, what its first symptoms are, and what its cystoscopic appearance is. Neither shall I deal with the technic of operation, but shall devote my time to a consideration of what I believe are certain basic principles in its treatment.

---

* Chairman's address, read before the Section on Genito-Urinary Diseases at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

In the study of my cases there came out certain facts, more or less disconnected, but that have, I think, a definite bearing on the question of the treatment of cancer of the bladder. In the first place, the one patient who has fulfilled the minimum arbitrary requirement that allows one to speak of cure in connection with cancer treated surgically—that is, the expiration of three years without signs of recurrence—was one of the patients whose operation was least extensive, though it was carried out about a month after the appearance of his first symptom, hematuria—the earliest case that has come under my care. This patient presented cystoscopically simply a little granular-looking area that was fairly widely removed laterally; it was not, however, very deeply removed. The incision went into the muscular layer only, not through it. Another important fact came out in the study of the condition found at the necropsy on one of my patients, who, a year before, had had a mucous cancer removed from the vertex of his bladder. This growth, including the full thickness of the bladder wall, was removed with a wide margin by the transperitoneal method. Though at operation I had been unable to find glands, at necropsy there were huge masses of retroperitoneal glands that were cancerous. More recently, I have chanced to notice in three other patients, on whom I did palliative operations, that the glands within the abdomen were involved.

It seems to me impossible to overestimate the importance of these two observations, illustrating (as I believe they do) fundamental points in the treatment of cancer of the bladder. The first, if I interpret it rightly, illustrates the fact that when a bladder growth is actually limited to the mucosa, we may excise it and have reasonable hope that there will be no recurrence. This depends on the generally accepted belief, which I believe is perfectly reasonable when we consider the storage function of the bladder, that its mucosa is either entirely without lymphatics or very poorly supplied with them, and that while a growth is actually confined to this layer there is nothing in the way of metastasis possible, the only extension being by continuity. The simple removal of a growth at this time destroys it *in toto*.

This accounts for what has been observed from time to time; namely, that freedom from recurrence has by no means been confined to the cases that have had wide removal of their growth; that it has appeared from time to time in patients whose growth has been excised with a very small area of healthy tissue. I believe that I am right in saying that in some of these cases, as in my own case, the microscopic examination left no doubt that the growth was really carcinoma.

Regarding the second point that I believe of importance—the finding of masses of carcinomatous abdominal glands at necropsy, and in three instances, of lesser glands at the time of operation—I believe that this illustrates at least one important route, probably *the* important route, by which these growths become disseminated. Though I felt no glands at the time I resected this man's bladder they may have been there at that time. Whether they were or not, I believe that this question of the lymphatics, both vessels and glands, is a most important one in the treatment of cancer of the bladder, one from which we may reasonably look for help.

In operations for cancer of the breast, tongue and stomach, and in the more modern methods of extirpation of the uterus and rectum, the lymphatic system is taken into very definite consideration and an attempt is made to remove diseased lymphatics and glands, with, so far as one can judge, improved results as regards cures. So important is this that it seems justifiable to increase the operative risk greatly in order to accomplish it. In cancer of the bladder, although we have had most disappointing results with present methods, we have simply widened our areas of resected bladder, still absolutely ignoring the possible part played by the lymphatics.

I think this is rather remarkable when we consider how essential a part of the plan of the modern surgical attack on malignant disease in other situations the tracing out of the course of the lymph-vessels has proved, and how carefully the removal of the diseased focus has been followed by the removal of the lymphatics and glands. I think at once of two possible reasons why this has not been done in cases of cancer of the bladder. One is the tradition that metastasis comes only late in these cases and that a dissection of the pelvic lymphatics would, therefore, be unnecessary. The other is that the operation would be so severe as to be impracticable in patients over 50—the age at which we see most cases of cancer of the bladder.

I am not ready to concede that this is necessarily so. I feel, however, that we should give this subject careful, attentive study in the hope that we may materially increase the number of patients who remain well following the removal of a cancer of the bladder. I am convinced that the most of our operating in this field is what one might fairly call "puttering"; we busy ourselves with little things and avoid great essentials. I feel that the removal of the lymphatics will be followed by better ultimate results than we now get.

Before an operation of this sort can be standardized it will be necessary to gain a wider knowledge of the lymphatics of the bladder than is generally possessed at present—whether or not different regions drain uniformly by the same channels. It will be necessary to find what cases it is useless to submit to so extensive a procedure. When this has been done, I believe that it will be found that a careful removal of the pelvic lymphatics will diminish the number of recurrences, much as seems to have taken place in the Wertheim operation for cancer of the uterus.

There is still another point that has a definite bearing on our method of operation. This is the fact that in ten out of twenty-nine cases the bladder growth had its seat so close to the bladder outlet as to make its local removal impossible without destroying the bladder outlet, in which case its total removal with the transplantation of the trigon and ureters would seem the rational procedure. I have always felt that total cystectomy was too fearful a mutilation to be often advised; yet if my series of cases is an average one, we must evidently advise it in one case in three if we are to remove the primary growth adequately—the first essential for successful treatment in all malignant disease. If in these cases the lymphatic current is found to be such that we can preserve that part of the trigon with the ureter openings and transplant it successfully into some part of the intestinal tract, preferably a part that has been shut off from the rest, to act as a new urinary bladder—if we can do this, the horror of total cystectomy will be materially lessened. Surgically there can be no question of the excellence of Watson's double lumbar nephrostomy as a preliminary to total cystectomy; personally, I feel I should not wish it. However, I think that unpleasant as total cystectomy is, we must expect to carry it out relatively frequently or else, because of inadequate removal of the local focus of disease, give up all hope of cure in a considerable proportion of cases of cancer of the bladder.

My contentions are that with every effort to recognize malignant disease of the bladder early, it will nevertheless be impossible to operate on more than an occasional patient when the disease is confined locally; in order to hope for better results in our treatment of cancer of the bladder, we must include as an essential part of our operation a dissection of the lymphatics of the pelvis; this must be done by routine, much as a dissection of the axilla is made in all breast cases except a few that are clearly too advanced to make this of advantage. When the local removal of the diseased area necessitates cystectomy, it must be carried out, or it is perfectly evident before we begin our operation that we shall fail in our object, that of stamping out the disease.

350 Marlboro Street.

SUBTOTAL CYSTECTOMY *

J. BENTLEY SQUIER, M.D.
Professor of Genito-Urinary Surgery, New York Post-Graduate School
NEW YORK

Cancer of the bladder constitutes 3 per cent. of all cancers in the male. Up to comparatively recent times we have had no adequate surgical technic for extirpation of malignancy in this organ. This is due to a number of factors, most important of which are: (1) the difficulty of conservation of the terminal ureters; (2) the lack of a definite surgical anatomy; (3) the questionable reparative power of the bladder, and (4) the hesitancy to attack the problem along definite surgical lines. An ideal extirpative operation for vesical neoplasm will be a technic which conserves or reconstructs the three natural orifices of the bladder, and one that removes the tumor *en masse,* with ileac adenectomy when the glands are involved.

In a consideration of this ideal operation there are certain facts to be thought of. It has been observed by a number of men and repeatedly demonstrated to me that if the three orifices of the bladder are conserved the bladder will regenerate and provide a functionating urinary receptacle. Another consideration is the desirability of a wide free exposure of the entire posterior surface of the bladder and base. Such a procedure may be accomplished either by transperitoneal dissection or as an entire extraperitoneal technic. In my earlier cases I regularly used a transperitoneal method but of late have carried out the technic entirely extraperitoneally. Where possible the anterior or pubovesical attachments are left intact. To meet the operative requirements both ureters must be constantly in sight; the lateral ileac extraperitoneal spaces readily available for exploration, and the entire bladder except the anterior portion freely mobilized. I believe that benign papilloma are at the present writing best treated by Oudin current. I believe that if any operative procedure is to be carried out for a vesical neoplasm, that neoplasm must be considered as actively or potentially malignant, and any operation for its removal must not be a simple excision but must be radical, along definite anatomic lines—in short, a *subtotal* cystectomy.

TECHNIC OF SUBTOTAL CYSTECTOMY

Description.—An operation for removal of a part or all of the bladder. Generally speaking, most operations involving the removal of a portion of the bladder are considered under the head of cystectomy, complete removal of the bladder being more in the nature of an operative curiosity than a feasible surgical procedure. The operative procedures may be carried out intraperitoneally or transperitoneally or as a straight extraperitoneal operation. It has been repeatedly observed that the bladder possesses wonderful reparative powers, and it has been demonstrated that from two-thirds to three-fourths of the bladder may be removed with subsequent adaptation to form an efficient urinary receptacle.

Incision.—This may be transverse or a median longitudinal incision (cystotomy). The longitudinal incision begins 1 inch above the navel on the left side and extends downward to the symphysis.

Step 1: The anterior sheath of the rectus muscle is divided about 1 cm. to the left of the mid-line and the left rectus displaced outward. The posterior sheath, above the semilunar fold of Douglas, is divided and the peritoneal fat exposed from the navel to the symphysis. By gently swabbing the fat and loose connective tissue up toward the navel, three important structures or surgical landmarks are brought into view. In the median line is found the urachus extending from the navel to the vesical apex. From the navel to each side of the urachus are found the obliterated hypogastric arteries, represented as divergent fibrous cords. These structures having been located, two procedures are in order: either to open the peritoneal cavity and continue the operation as a transperitoneal procedure, or to carry out the operation entirely as an extraperitoneal incision.

Step 2: The peritoneum is incised from the navel down to a point corresponding to the semilunar fold of Douglas. The patient is placed in an extreme Trendelenburg position and intestines gently deposited in the upper portion of the abdominal cavity. The pelvic cavity is thoroughly walled off by one or two long continuous rolls of sterile gauze. Two laparotomy pads are attached at each end of the wound in order to protect the incision from implantation of tumor cells.

Step 3: The urachus is grasped at the lower angle of the peritoneal incision by a Barret intestinal forceps. Traction is made upward, throwing into relief the obliterated hypogastric arteries as they divaricate to enter the true pelvis. The left obliterated hypogastric artery is grasped with forceps and traction made upward and to the right. By blunt dissection between the obliterated hypogastric artery and lateral wall of the pelvis, the left vas deferens is brought into view as it courses along the pelvic wall to the inner side of the obliterated hypogastric artery.

Step 4: A blunt single hook retractor is passed under the left vas deferens and gentle traction exerted. Blunt dissection is continued downward along the course of the vas deferens, and the pelvic ureter is uncovered as it bends inward above the fascia of the pelvic floor to enter the bladder, the ureter at this point being crossed on its inner side by the vas deferens. A similar exposure is made on the opposite side and the right ureter exposed. Any radical procedure directed to the extirpation of neoplasm of the bladder must have the two ureters exposed and constantly in view. This is the essential point in any radical technic.

---

* Read before the Section on Genito-Urinary Diseases at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

Step 5: The urachus is divided close to the summit of the bladder and traction is made on the bladder downward toward the symphysis. From the two points of lateral dissection previously made the peritoneum is stripped off the fundal surface of the bladder. The denudation extends deep into the rectovesical space and the peritoneal culdesac of Douglas is pushed upward and backward. If the peritoneum is found firmly attached to the bladder and already the seat of malignant infiltration, this area is left undisturbed and a wide encircling incision made about the infiltrated peritoneum. If the peritoneum is not infiltrated, the entire bladder, except the anterior or pubovesical attachment should be freely mobilized, both ureters free, and the superior poles of the vesical and the upper portion of the posterior surface of the trigone in sight. The entire procedure can be carried out without entering the peritoneal cavity. Occasionally, the peritoneum is torn into and should be brought together with No. 1 plain catgut. No hemorrhage of any moment should have been encountered and the venous ooze should have been readily controlled by hot wet pads.

Step 6: The denuded lamella of peritoneum is carefully attached to the upper end of the abdominal incision, so that, for all further operative procedures, the peritoneal cavity is to all intents and purpose closed.

Step 7: The bladder is grasped high up on the posterior surface and an incision is made in the longitudinal direction, about 1 inch in length. Through this opening an inspection of the bladder is made and the topography of the tumor determined. The incision is extended in any direction that may be necessary for proper operative exposure. Since, in the majority of instances, the tumor will be found to occupy the summit, side or trigone of the bladder, an incision downward in the posterior median line, which splits the organ in half will be the usual incision of election.

Step 8: The neoplasm is excised *en masse,* together with a wide margin of healthy, uninvaded tissue comprising the entire thickness of the bladder wall. The exposure of the ureter, which has already been made, now becomes of prime importance. If the ureter is affected it is divided between the ligature above the growth and the distal portion is removed with the tumor. The proximal portion is allowed to remain undisturbed until partial closure of the bladder defect is accomplished.

Step 9: The hiatus of the bladder wall after excision of the tumor is partially repaired (the method of closure being similar to the Connell intestinal suture with No. 2 chromic gut), a stab-wound is made through the bladder wall at a point approximating the normal ureteral opening and the proximal portion of the divided ureter drawn through this opening by a thin dressing forceps.

Step 10: The ureter is brought through the stab-wound and anchored to the bladder wall. About ½ or ¾ inch of the ureter is allowed to protrude into the bladder. Two flaps are made by dissection of the ureteral stump and the flaps turned back and anchored *in situ.* The remaining defect in the bladder is closed with a Connell suture as above and drainage of the bladder instituted by means of a stab, button-hole incision, anterior to the line of incision and at a point that will correspond to the highest point of the bladder when the operation is completed. Through this aperture a No. 26 F. soft rubber catheter is drawn and sutured *in situ.* A drainage-tube inserted in this manner insures against leakage along the tube into the perivesical space.

Step 11: The final step is the reposition of the peritoneum over the vesical suture line and an accurate closure of the peritoneum. If the peritoneum is invaded by the growth, the involved portion is resected with the growth and the peritoneal hiatus closed after the usual fashion, particular care being taken to prevent a peritoneal suture line being superimposed on a bladder suture line. A cigarette drain is inserted into each lateral space leading down to the ureter and the abdomen closed with Figure 8 silkworm sutures. In addition, a self-retention catheter is inserted.

COMMENTS

The operative treatment of tumors of the bladder has been inadequate in preventing local recurrence and implantation metastases. In a case of malignant tumor, the tumor *per se* should not be handled and the excision must be through all the coats of the bladder and the peritoneum adjacent to the bladder wall if found to be infiltrated. The wide denudation in the preceding technic can be made with the patient in a high Trendelenburg position, either intraperitoneally or extraperitoneally.

The vas deferens in the male offers the most reliable and quickest way of reaching the terminal ureter. The blunt dissection along the lateral walls of the pelvis allows for the exploration about the ileac vessel for metastatic glands.

In the female the relation to the uterine artery allows for an accurate localization of the terminal ureter.

Any cystectomy for vesical tumor should be radical along the lines indicated above. In substance there is no difference between intraperitoneal and extraperitoneal surgery for this class of work. Leakage, if it does occur, does not take place into the peritoneal cavity when the peritoneum has been sutured carefully with a serous approximation of surfaces. If after opening the bladder a malignant neoplasm is excavated or sessile, cauterization of the base or surface of the tumor is a procedure of undoubted palliative value. After excision, searing the cut edges before suturing is a very wise precaution. The use of 50 per cent. resorcin or 1:5,000 mercuric chlorid, swabbed about the bladder, is useful in destroying any detached tumor particles.

49 East Forty-Ninth Street.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. CHUTE AND SQUIER

Dr. Eugene Fuller, New York: Cancer of the bladder has, as a rule, been treated in a very haphazard and unsatisfactory manner. Such work as Dr. Squier has shown is certainly beautiful. It gets down where the disease is in the cases that are so operable, and leaves practically nothing to chance. We have been inclined in most cases to rely on sparking and to sit back and do nothing else, which is a bad thing, although in certain cases the spark has done good and is the approved treatment. It is *only* in certain cases, however. I had one case in which I operated for cancer of the floor of the bladder, and the man was living ten years afterward. In that case I resected a large portion of the bladder. I made a suprapubic incision, transfixed the whole mass, took it out, and got a perfect result. Operating like that is more or less haphazard. Five years afterward I operated in this same case for a little recurrence in the stump, and took that out. It is advisable in these cases to operate radically. Again, there may be a case in which one thinks one has done radical work and is disappointed. Not long ago I had such a case in which I resected a considerable portion of the bladder. The man, I thought, was doing extremely well; he got up; but five weeks after the operation he had a spontaneous fracture of the upper thigh from metastasis. I do not think we could manage radically cases like that which Dr. Squier reported, except by the careful method which he described.

Dr. John L. Atlee, Lancaster, Pa.: I report two cases with a great deal of reluctance. I had, recently, two cases of cancer of the bladder in which I did a total extirpation. The first one I did simply because I did not know what else to do. The man had a cancer in the location shown by Dr. Squier, I would say, possibly half again as large. In the cases that I had seen in which no attempt had been made to relieve, the patients had suffered so that I felt I was justified in making the attempt. In that case I did a total extirpation, simply skinning the bladder from the prostate. The ureters were stitched together where they crossed the rectum and were transplanted together like the barrels of a double-barreled gun. The abdomen was drained, and a large rubber tube placed in the rectum. That man is 52 years old. There was very little shock. His recovery was very satisfactory. The control of his rectum was very satisfactory. He also had satisfactory sexual intercourse. He lived nine months and died from recurrence. He had pain in the region of the kidney, which I thought was due to an ascending infection, but at necropsy the glands were involved all over that side, and I felt that the pain was more due to the glands than to an ascending infection. Both ureters were full of turbid urine, and there was no evidence that I could see of an ascending nephritis. The second patient was operated on about two months later, about eight months ago. The man was 63 years old. The operation was done the same way, except that the ureters were cut higher up, and the left ureter was stitched into the sigmoid. That man is still alive, although he does not look well. He had one attack of ascending infection on the left side, with pain and rise of temperature, but he recovered. He was feeling well when I saw him three weeks ago, but he does not impress one as being a healthy man.

As I said, I did these operations with, possibly, no justification except to try to save the patients from a terrible death. If the lymphatic drainage of the bladder is as free as some authorities claim, that is, not only into the pelvic glands, but also into the inguinal glands and into the saphenous glands, a block dissection of the bladder is impossible. Therefore, if a block dissection is necessary it would be impossible in the bladder, because it is difficult enough in the Wertheim operation. If we applied it as a palliative operation the chance is that the patient would die as soon from infection as he would have died from metastasis. I was surprised at the comfort these men had in passing the urine from the rectum. They would go all night without urinating. One of the men was strong enough to go back to work, but did not have to do so. Both men expressed themselves as perfectly satisfied with that method of voiding urine.

Dr. Francis R. Hagner, Washington: The point Dr. Squier makes about getting at the ureter first and separating the bladder afterward, simplifies the operation very much. I have not done this operation by his method, but I have taken calculi out of the ureter by the same method. It is possible to get a better exposure than in any other way I know of. Dr. Chute has spoken of infection of the glands in these patients. Any one operating on such a patient and seeing large glands would remove them. It is a question whether it would do any good. We know the glands are not involved until late in the disease, and I have seen necropsies on such patients in which there was no involvement of the glands. Some years ago I presented a method of operating on growths of the fundus and lateral walls of the bladder by cystoscoping the patient, and under visual inspection outlining the growth with traction sutures. One of the weak points in the removal of growths from the bladder is the traumatism to the growth, and by this method it is easy to remove them without traumatism. One patient was operated on four years ago and has had no recurrence; one over three years ago, with no recurrence, and another died recently from some intercurrent trouble with no evidence of recurrence.

Dr. R. L. Rigdon, San Francisco: What would Drs. Squier and Chute do in such an instance as this? Just before leaving home I examined a patient who presented a well-defined, rather small tumor, occupying the right side of the bladder, including the bladder neck, apparently taking in the urethral orifice. Let us take it for granted that from a general point of view that man is suitable to be operated on. Whether or not the ureter is involved does not seem to make much difference because we can transplant that; but when I go back home what shall I do for that man? If I operate on him I must remove the sphincter of the bladder, at least a portion of it. I was in hopes that some of our members would report a brilliant series of cases treated by means of the spark so that I might be saved the necessity of doing a more radical operation on that patient.

Dr. B. A. Thomas, Philadelphia: The rationale of the extraperitoneal and the transperitoneal route of approach in these cases with the partial excision of the bladder described by Dr. Squier is certainly the most valuable suggestion which has yet been offered in cases of cancer. I strongly believe that the method *par excellence* for treatment of papillomas of the bladder, whether single or multiple, is the method of high-frequency desiccation or sparking by the Oudin high-frequency current, and I have treated no less than thirty tumors in this manner, with very excellent results. How does Dr. Squier distinguish between carcinoma and papilloma? I think the impression that he desires to make is that this operative method is applied only in undoubted cancer of the bladder, but I would enjoin the importance of this differentiation, in view of the superior advantage of the electric-spark treatment in cases of papillomas. We all know that in papillomas there may be two sites at which epithelial degeneration and cancerous formation take place; these are, superficially and at the pedicle attachment with the bladder-wall. Even though the surface of the growth is cancerous, the pedicle may not be, and one can cure such epithelial superficially degenerated tumors, if one is able to make the differentiation, by the high-frequency spark. On the other hand, if there be cancerous degeneration of the pedicle, the only method of treatment is that which has been described by Dr. Squier.

Dr. Louis E. Schmidt, Chicago: I am in accord with Dr. Squier's statement that one should start out intelligently. In other words, the diagnosis must be accurate as to the location and extent. If a tumor is located on the left side of the bladder it would be rather unnecessary so far as his procedure is concerned, to separate the right side of the bladder completely, because, with a thorough understanding as to the location, the parts can be separated as was shown. I am in the habit of avoiding the intraperitoneal operation. If the tumor is located low down, not involving the ureter, I do not do the so-called Watson or intraperitoneal operation. I separate the peritoneum sufficiently far from the tumor, and if I see that the peritoneum is adherent it is then opened up sufficiently distant and can then be closed before the tumor is excised. One of the mistakes frequently made—at least I have seen it and have made it myself—is to distend the bladder to such an extent that the bladder-wall is of paper thinness. By so doing you easily rupture the bladder when stripping off the peritoneum. I prefer not to distend the bladder to any extent, and the procedure can be carried out as Dr. Squier has described it. I do not believe that the extent of bladder tumors plays such an important part in the prognosis, although we have always been told that the larger the tumor the greater the possibility of metastasis, particularly glandular. I operated nine years ago for a spindle-celled sarcoma, which is fairly malignant I think we will agree, when the entire bladder except the trigon was removed. This individual now has a bladder which is absolutely not to be recognized from any other bladder. He can hold his urine from eight to twelve hours, and has absolutely no vesical symptoms. In the past two months I have operated on him for an inguinal hernia. In this person there was certainly no glandular involvement. I have cases of resection of the bladder for cancer in which operation was done seven years ago with transplantation of the ureter. I have several cases in which resection of the bladder was done four or five years ago when a part of the trigon was removed, with a fair-sized portion of the posterior wall of the bladder. If, in those instances, there had been any marked metastasis in the glands, four or five years is a fairly long time, though it does not absolutely exclude the possibility that these individuals may die of cancer. In the last six months I have made three extensive operations for cancer, and the patients are still living. In opening the abdomen, however, it is well worth while always to examine for glandular enlargement. I believe that if enlarged glands are found it is almost a hopeless proposition. So far as resection of the neck of the bladder is concerned, I think many patients who have been operated on will be relegated to a different field of therapy.

Dr. Granville MacGowan, Los Angeles: The character of most of these tumors can be fairly differentiated by the careful use of the cystoscope. I do not use the high-frequency current for sparking a tumor that looks at all suspicious. If it is frankly a papilloma, it can usually be destroyed by the high-frequency current unless situated just above the bladder neck where they are difficult to get at. If a tumor is sessile or manifestly indurated, I consider it a cancer and regard as foolish the application to it of any mode of electricity or cautery except through a suprapubic incision. One must remove more of the bladder than just enough to get whatever is manifestly cancerous. I deprecate the use of the knife or scissors. There are electric cautery points made from iridoplatinum that are extremely efficient, easy to manipulate and allowing rapid work. After the removal of the tumor, any bleeding vessels should be ligated. I have had extremely satisfactory results with resection by the electric cautery, when not more than one-half of the bladder surface was included in the growth. I operated on one woman in 1900 for a cancer by this method, who was well until 1906 when another cancer appeared in an entirely different portion of the bladder. This was removed in the same way and she was well until 1911 but died in 1913 of cancer of the bladder. From 1906 I used the cystoscope on this patient two or three times a year and she had no cancer until 1911. With regard to Dr. Rigdon's case, if the cancer is situated on the vesical neck and it is hopeless to attempt to excise it without taking away the neck, I would not be deterred by regard for the internal sphincter, because I have removed bladder necks in operations for cancer of the prostate, with after results showing that the internal sphincter is negligable with reference to the retention of urine. In such a case the most reasonable thing to do is to side-track the bladder. If the bladder were removed as a receptacle for the urine by such an operation as was done by Dr. Atlee, I think it would solve the problem. I object to the use of the knife in cancer, because if a metastasis has not already taken place, it is easy to cause one by squeezing some of the cancer-cells into the open blood-vessels or the lymph-channels. The cautery seals up both blood-vessels and lymph-spaces. The cautery provides against the carelessness of one's assistant and of one's self. The cautery will cut, if you have the right kind.

Dr. William E. Lower, Cleveland: This is one of the most important unsolved problems that we have in genito-urinary surgery. Many of the operations on other parts of the genito-urinary tract are being more or less standardized, but this is an extremely annoying one, at least it is to me, and as Dr. Chute has stated, it is an operation that one does not expect very much from, but sometimes the results are surprising, showing a resistance to a particular kind of growth perhaps, rather than to any particular kind of operation. I think we make one mistake in these cases in not requiring our patients to come back for inspection as often as they should; after operation for cancer of the breast the surgeon asks his patient to report every three months. We wait until they have symptoms. If the patients come back every three months as I am having them do now, and we use a cystoscope, we can discover a recurrence, if any appears, fairly early, and at a time when remedial measures may be used, but if we wait for such objective symptoms as hemorrhage, etc., it may be too late. I recall one case that I reported before, in which I removed the tumor suprapubically by excision, and in less than four months it recurred. By the judicious application of the spark I have been able to keep the patient perfectly well now over three years. It was not a radical operation. In another case in which we did a radical operation we found that metastasis had already occurred and the patient was dying from metastasis in the bones. I am hopeful that this problem will be worked out in some way, because, as it is now, it is most discouraging and most unsatisfactory to be obliged to give the present results of operation for malignant tumors of the bladder to a patient presenting himself with such a lesion.

Dr. Martin Krotoszyner, San Francisco: The rapidity with which malignant bladder growths will occasionally recur and increase in size was made manifest to me recently in the case of a woman of 41 in whom a portion of the bladder had been resected for carcinoma. A few months afer this operation a careful cystoscopic examination revealed a normal bladder, but about two months later a large mass was seen to occupy the whole left side of the viscus. Since the patient refused any operative interference, I proceeded to fulgurate the neoplasm and the rapidity of the onslaught of the malignant infiltration became manifest through the fact that from one week's sitting to the next, new growth of carcinomatous tissue became visible within the fulgurated area. This case was to me another proof of the futility of treating malignant bladder-growths with the spark.

Dr. J. Bentley Squier, New York: With regard to the differential diagnosis referred to by Dr. Thomas, I simply state that the majority of vesical tumors are potentially malignant, if not clinically so, at the time we see them. I believe that one should not spend too much time in experimenting with the high-frequency current on any tumor unless there are unmistakable signs of improvement at once. Otherwise, get busy and operate. I think we will all agree with that. I have never had the opportunity to try Dr. Hagner's operation. It would strike me as being the ideal radical operation on a cancer, if one could outline the extent of the tumor beyond any question of doubt before extirpation is attempted, and I would recommend it as a wonderful operation for carcinoma situated in the vertex of the bladder. Dr. Schmidt asserts that one should make a correct diagnosis of the extent of the tumor by the cystoscope. I do not believe one can make an absolutely accurate diagnosis as to the extent of a vesical tumor by means of a cystoscope.

Dr. Schmidt: I said as nearly as possible. I said the location, not the extent, because I do not believe we can look through the bladder wall.

Dr. Squier: He says he should not open both lateral perivesical spaces because if the tumor is situated on one side one can locate it without so doing.

Dr. Schmidt: I mean that when the tumor is on one side of the bladder it is not necessary to peel the entire bladder out. One can feel the extent of the tumor. I think anybody who has done any surgery of the bladder will agree with me.

Dr. Squier: Dr. Schmidt is correct. I think that by the use of the cystoscope one cannot tell how much of the bladder-wall is involved in carcinoma. Therefore I believe that a general mobilization of the bladder gives one a greater ability to handle it correctly, Dr. Schmidt's criticism to the contrary notwithstanding. With regard to Dr. MacGowan's statement that he would not operate on these cases until they are ready to go to the grave—

Dr. MacGowan: I didn't say that. I said unless I could circumscribe the growth I did not care to operate.

Dr. Squier: My criticism of your remark would be the same. I defy you to outline it through the cystoscope.

Dr. MacGowan: I did not mean through the cystoscope.

Dr. Squier: What other criterion have you?

Dr. MacGowan: That was with reference to high frequency and the differentiation of a tumor that was manifestly a papilloma and one suspiciously a cancer. I would use high frequency on all those that clearly appear to be papillomas, and on account of the superficial action of the high-frequency spark I would not tease anything that looked as if it might be a cancer. I would either leave them alone if too extensive or if there were too large a number of them, or operate on them by the galvanocautery.

Dr. Squier: I am glad Dr. MacGowan has made his meaning clear. With regard to the knife or cautery, one is not cutting the cancer with the knife. Therefore, what is the objection to it? One is cutting the healthy bladder wall. Dr. Lower really voiced what I had in mind. It was not to describe any operation for carcinoma of the bladder which I thought would work in every case. I know in how many of my own cases it will not work, because I have tried it and I know exactly the results it will produce. I merely offered it so that some of us would go home and evolve a technic which would do something. We have sat back long enough and opened bladders and sent the patients home and have not given the patient a chance for his life. He is worse off than before. We have stimulated the cancer and given the patient a suprapubic fistula in many cases, and instead of being only unfortunate we have made him a nuisance to the community by making him smell of urine all the time. Let us do something definite or not do anything. The only criticism I would have is this, that if one is going to do a considerable resection of the bladder and depend on the line of sutures to prevent leakage into the perivesical space and possibly into the peritoneal cavity, the chance of primary union would be infinitely better following the use of the knife than the use of the cautery.

Dr. MacGowan: One can freshen the edges afterward and then put in the sutures and it will result in perfect union.

Dr. Squier: I do not question whether it is possible, but whether it would happen often enough to make it desirable.

Dr. A. L. Chute, Boston: There is little to be said concerning Dr. Rigdon's case. If you are going to give the patient a chance to be permanently well, all the malignant disease locally must be removed, including, in this instance, the bladder outlet. I see nothing to do but to perform a cystectomy, treating the ureters as seems best.

Surplus Energy and Progressive Evolution.—It appears to me that this power of profiting by experience lies at the root of our problem, and that in it we find a chief cause of progressive evolution. Jennings speaks of the principle involved here as the "Law of the readier resolution of physiological states after repetition," and, similarly, I think we must recognize a law of the accumulation of surplus energy as resulting therefrom. Let us look at the case of the accumulation of food-yolk by the egg-cell a little more closely from this point of view. Every cell takes in a certain amount of potential energy in the form of food for its own use. If it leads an active life, either as an independent organism or as a constituent part of an organism, it may expend by far the greater part, possibly even the whole, of that energy upon its own requirements, but usually something is left over to be handed down to its immediate descendents. If, on the other hand, the cell exhibits very little activity and expends very little energy, while placed in an environment in which food is abundant, it will tend to accumulate surplus energy in excess of its own needs.—Arthur Dendy, *Medical Journal of Australia.*

CERTAIN MINUTE CYSTS OF THE METACARPAL BONES FOLLOWING TRAUMA, AND THEIR CLINICAL RECOGNITION

P. G. SKILLERN, Jr., M.D.
Instructor in Anatomy and Surgery, University of Pennsylvania
PHILADELPHIA

While cysts of the long bones are not infrequently encountered, yet those involving the short bones of the extremities have received little or no attention. I have recently met two examples of pea-sized cysts situated, respectively, in the head and the base of a metacarpal. Both of these immediately followed trauma (contusion of bone); by reason of persistent pain and "wincing" tenderness both would have passed for subperiosteal fracture, although there was no swelling or ecchymosis; there was no enlargement of the bone, and there were no signs of inflammation. It was only by close scrutiny of the roentgenograms that the faint outline of each cyst was detected. Operation gave immediate and complete relief in both cases.

Case 1.—Miss M. J., aged 61, cook, reported at the Surgical Outpatient Department of the University Hospital (Case Record 40013) March 11, 1914, with the history of an injury, incurred sixteen months previously, to the base of the first metacarpal bone of the right hand. Since then there has been pain, which has gradually increased in severity. Clinically, there was localized tenderness similar to that elicited in fracture, but not quite so severe or "wincing." There were no other signs of inflammation. A roentgenogram revealed a cavity the size of a pea at the ulnar corner of the base of the first metacarpal bone. Under nitrous oxid anesthesia an incision was made along the ulnar border of the base of the metacarpal bone. The tendon of the extensor pollicis longus and the carpometacarpal joint, which were hard by, being carefully avoided, the cavity was readily entered with a narrow chisel, and was curetted. It was packed with iodoform gauze, and a dressing and a splint were applied. On her return the next day the patient stated that she had been free from the boring pain for the first time in sixteen months. On discharge, two weeks later, the wound was all but healed.

Case 2.—Mr. J. W., aged 33, machinist, reported at the Surgical Outpatient Department of the University Hospital (Case Record 40893) June 18, 1914, with the history of an injury, inflicted five weeks previously, to the head of the third metacarpal bone of the right hand, which had been struck a severe blow against a metal oil-guard. Pain started at the time of the injury, and has persisted. It shoots down to the finger-tips. It is worse when he grips; there is none at night. Clinical examination revealed limitation of motion at the third metacarpophalangeal joint, and "wincing" tenderness at the head of the metacarpal. A roentgenogram revealed no fracture, but on close scrutiny a pea-sized cyst at the radial side of the head of the metacarpal and anteriorly.

Under nitrous oxid anesthesia and Esmarch anemia, an incision was made just to the radial side of the extensor tendon of the middle finger, and the bone was exposed by retracting the capsular ligament. The bone was removed from the proximal and radial portion of the head until the cyst was emptied. It was pea-sized and filled with clear, tenacious mucoid material. The cyst wall was curetted, phenolized and packed with iodoform gauze. The edges of the deep fascia were approximated. Hemostasis was secured and skin edges were approximated. A splint was applied. After the operation the patient stated that immediate relief from the shooting pain was afforded.

A roentgenogram, taken when the wound was entirely healed, shows the remains of the cyst cavity outlined by iodoform powder, which was inserted into it at a dressing a few days after operation. The cavity is much diminished in size.

A review of recent literature reveals but one case that may be compared with mine. McDill[1] reports a cyst in the distal half of the fifth metacarpal bone. It began three years previously as a small, painless swelling which gradually increased for a year, when it swelled rapidly, became painful, and was opened, giving exit to stringy mucopus, and discharged at intervals for the remaining two years. The roentgenogram shows an oval cyst with one end at the neck of the bone and the other just below the middle of the shaft, of which it occupies two-thirds of the width and one-fifth of the length. The shaft is not expanded. McDill says: "So far no case has been reported in the long bones of the hands or feet." Silver,[2] in a series of ninety-seven cases of bone cysts, found but one each in a metacarpal and metatarsal bone. Elmslie,[3] in an extensive review of the subject, says: "Most of the cysts of the metacarpal and metatarsal bones and of the phalanges have been definitely myxomatous, resulting from degeneration in enchondromata."

Robert Jones[4] describes three large cysts in the bones of the hand: expansion was present in all. Indeed, perusal of the literature of bone cysts shows that enlargement was almost invariably present. The cysts, colossal in comparison with mine, with the single exception of McDill's case, represent, without doubt, advanced stages of pathology. This, together with the fact that the whole subject of bone cysts is comparatively recent, forces me to the conclusion that my cases represent the earliest stage, the stage in which it is most desirable to recognize any disease. It must be borne in mind that there was no enlargement in either case; that in both there was the history of localized trauma, of persistent but not severe pain, and of localized but not typically "wincing" tenderness. In fact, there was the clinical picture of a "chipping" fracture with lingering signs, because untreated. It was only by close scrutiny of the skiagram in the first case for such a chip that the minute cyst was discovered. In the second case detection of the cyst was facilitated by the memory of the first case, which had preceded it by only three months.

As to the pathology, I am unable to present any observations. The cysts were so minute that it would have been unjustifiable to resect the bones in order to study the cysts. At operation, each cyst had a sharply defined globular wall, and the contents resembled the vitreous body of the eyeball. By correlation, however, I incline to the opinion that the cysts are the result of hemorrhagic osteomyelitis, which has been described by Barrie and Hillman,[5] who define it thus: "The term hemorrhagic osteomyelitis is meant to embrace a majority of those traumatic, localized, non-infective (so far as we know at present), non-suppurative, low-grade inflammatory lesions that have their onset in spongy bone." The slight trauma in my cases was sufficient to cause fractures of the delicate normal bone trabeculae, producing effusion, hemorrhage, and interference with nutrition, thereby setting up a localized osteomyelitis. The pigments of the blood were absorbed, leaving clear contents, just as occurs in cysts of soft tissues, notably in pancreatic cysts of hemorrhagic origin.

I have noticed several times minute cysts about the size of the head of a pin in the carpal semilunar in roentgenograms taken for other conditions, but doubt if they were true cysts. A study of trabeculae in roentgenograms shows that cysts may be simulated by certain arrangements of lights and shadows. The best way to avoid error is to correlate clinical findings with those of the roentgenogram.

CONCLUSIONS

1. Cysts of bone should be detected in their incipient stages before extensive destruction of the medulla has taken place.

2. Early operation results in prompt cure, and prevents deformities and extensive bone plastics.

3. A localized trauma followed by persistent but not severe pain, and localized but not true "wincing" tenderness—symptoms and signs of an untreated "chipping" fracture—should arouse clinical suspicion of a minute, early bone cyst, the corroboration of which may be afforded by close scrutiny of a roentgenogram at the site corresponding to that of the localized tenderness.

241 South Thirteenth Street.

---

1. McDill: Ann. Surg., 1913, lvii, 533.
2. Silver: Am. Jour. Orthop. Surg., 1912, ix, 563.
3. Elmslie: Brit. Jour. Surg., 1914, ii, 54.
4. Jones, Robert: Arch. Röntgen Ray, 1907, xi, 316, 342.
5. Barrie and Hillman: Surg., Gynec. and Obst., 1914, xix, 42.

SUPRAPUBIC PROSTATECTOMY*

CHARLES E. BARNETT, M.D.
FT. WAYNE, IND.

On account of the mortalities occurring, no one is exactly satisfied with his technic in prostatectomy, except for the present time, but naturally he thinks that just now it cannot be improved on.

The men who do the greatest number of operations do not necessarily have the best technic for general use, for that which is easy for the one who knows how may be impossible for the other man. Then, too, the operator before a clinic may devise an operation for "sight seeing" for the spectators that will aggrandize himself at the expense of the patient.

Gentleness, thoroughness with simplicity is becoming the more fashionable prostatectomy. The time is also present when an operator is more easily divorced from a false opinion than heretofore.

Prostatectomy seems to have reached the stage where the lesser points are deemed essential.

There are possibly four principal reasons for the suprapubic operation to carry the greatest preference at the present time:

1. The danger of the pus-bathed perineal tube forcing infection into the torn open-mouthed veins and thereby producing emboli and thrombi.

2. The greater ease of local anesthesia in the suprapubic region.

3. The avoidance of trauma through the pelvic diaphragm.

4. The comparative ease and simplicity of postoperative treatment.

From the results following non-irrigation for the control of hemorrhage, it would seem that irrigation was a menace rather than a benefit, especially when the preoperative preparation endeavors to improve the fibrin product of the blood. The clot formed in the bladder assists in checking further hemorrhage. Irrigations were necessary only during times past when the drainage-tube lumen was small.

---

* Read before the Section on Genito-Urinary Diseases at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

For the same reason that a perineal drainage-tube carries a possible danger of forcing pus into the torn open-mouthed veins, so also is a retained urethral catheter contra-indicated. The fact is that even sounding of the urethral canal is quite hazardous as a late postoperative procedure for fear pus will be forced back through the ejaculatory ducts or out of the vas ampulla to infect the epididymis.

The lack of shock is so marked following operation under local anesthesia that it would seem advisable to operate under local anesthesia in all cases to the farthest degree whereby pain is not felt by the patient, supplementing finally general anesthesia, if necessary, until the prostate is removed, then fixing the drain and closing the wound under the retained local anesthesia.

The most perfect postoperative recovery which I have ever experienced occurred in the following case:

Mr. S., aged 76, Feb. 2, 1914, No. 250-S. The man was young for his age. Following a perfect preoperative preparation the patient was operated on under local anesthesia. The skin from just below the umbilicus to pubes and also the deep linea alba were injected with 1 per cent. cocain solution. All fascial and muscular planes laterally were injected with 1:400 novocain, as well as the bladder wall. After opening the bladder (incision extending 1 inch pubically from peritoneal fold) the prostate was injected deeply with 1 per cent. cocain while the pericapsular region was injected with the 1:400 novocain solution. The operation was painless, except for a short period during the prostatic enucleation. A 1-inch drain was purse-stringed into the roof of the bladder; small cigaret drain to Retzius' space; wound was closed without additional local anesthetic. Patient was put to bed without the Fowler elevation, attended by a special nurse, without irrigation for hemorrhage. The only inconvenience in the convalescence, which by the way was not experienced by the patient, was gas collections in the ascending and transverse colon.

At the Los Angeles session, several years ago, I spoke of the importance of chronic colitis playing an important influence in prostatectomized patients. I still think that the subject does not receive the general attention that it deserves. Old prostatics generally have indolent constipated bowels, which are much influenced by the renal toxemia which has induced, from the years of pathology, a chronic inflammation of the colon. This colic pathology is aggravated by and itself superinduces gas distention which opens up another field for toxic absorption, which added to the overloaded kidneys adds another weight toward dissolution.

The toxemia from the distended colon, even when the kidneys show a fairly quantitative and qualitative urine, is so profound that the temperament of the patient will become so disagreeable, so changed, that the nurses' patience will be tried sometimes to the point of breaking.

I have noted flights of temper in these patients which were entirely unnatural and unnecessary. While the distention was giving the patient no discomfort from pain, yet, just as soon as the distention was relieved, the temperature and temperament of the patient returned to norm[illegible] place of the principal thoughts of the surgeon shoul[illegible] tend to preparatory treatment to correct and in the [illegible] ve treatment to remove the gas distention o[illegible]

THE ULTIMATE RESULTS OF GENITAL TUBERCULOSIS IN THE MALE*

J. DELLINGER BARNEY, M.D.
Genito-Urinary Surgeon to Outpatients, Massachusetts General Hospital; Assistant in Genito-Urinary Surgery at the Harvard Medical School
BOSTON

Genital tuberculosis in the male is a very grave affection. It does not indicate, as many suppose, an infection of the genital tract alone. On the other hand, a careful analysis of many cases shows it to be merely another outbreak of a tuberculous infection which has been smoldering sometimes for years.

In an analysis of 153 cases of epididymal tuberculosis seen at the Massachusetts General Hospital, I[1] found evidence of tuberculosis of other organs, notably lungs, in 35 per cent. In most of these (29 per cent.) the disease was active at the time of entrance to the hospital. In the present series of cases, 154 in all, tuberculosis of organs other than those of the genital tract was found to exist in 55.8 per cent., the lung again being most frequently involved with a total of thirty-five cases, 22.7 per cent. of the whole. Kidney and bone infections came next with seven cases each. Genital tuberculosis is, therefore, to be regarded as but another manifestation of an active tuberculous infection and a lowered resistance on the part of the patient.

Tuberculosis of the genital tract affects the epididymis primarily. So far as I am aware, no case starting elsewhere than in the epididymis has been observed in a now considerable experience; nor, so far as I know, do the records of the Massachusetts General Hospital contain such an instance. Guisy,[2] in 183 cases of genital tuberculosis, found but ten involving the prostate and vesicles alone; while Saxtorph[3] observed only nine in a series of 205 similar cases. Infection starting elsewhere than in the epididymis is, therefore, exceedingly uncommon. In the urinary tract the primary focus is always in the kidney, a fact borne out by ample clinical and pathologic experience.

The general profession is too apt to use loosely the term "genito-urinary tuberculosis." While the genital and urinary organs may each be tuberculous, careful inquiry will show infection of the one tract to be secondary to that of the other. An analysis of the 154 cases now under consideration has shown a tuberculous infection of the kidney in eighteen. Of these, the genital lesion preceded the renal infection in eleven, whereas in seven the kidney was first involved. In one or two other cases, observed by me, but not included here, the latter sequence has also occurred. It is thus seen that the infection extends more often upward than downward, a fact which in my opinion favors strongly the transmission of the tubercle bacillus by the lymphatic route. In those cases in which epididymal tuberculosis of one side is followed by an involvement of the opposite kidney it is to be accounted for by a crossing of the lymphatics at the base of the bladder. If such infection took place by way of the blood-stream it seems reasonable to suppose that the kidney would more often be the primary focus of the genito-urinary tract. On the other hand, one might argue that a greater resistance of the kidney to the onslaught of the tubercle bacillus was the determining factor in the order of events.

---

* Read before the Section on Genito-Urinary Diseases at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

1. Barney, J. Dellinger: Am. Jour. Urol., December, 1911.
2. Guisy: Ann. d. mal. d. org. Gén.-urin., 1906.
3. Saxtorph: Cong. Internat. de Chir. Urin., 1900.

Let us now see what encouragement can be held out to the patient with tuberculosis of the epididymis. Of 154 cases taken from the records of the Massachusetts General Hospital, 113 have been traced since operation. Of these, 31 patients are known to have died of tuberculosis. Eight more have died of other causes, but it seems highly probable that a majority of these were still tuberculous at the time of their death. Sixty are now living. I have personally examined 32 of these men anywhere from two to fifteen years after operation. By letter and otherwise, satisfactory statements of bodily health have been obtained in 28 others now living at from two to twenty-six years after operation. Information as to 13 more, living from one to three years after operation, but since lost sight of, is also included because of certain important facts.

The old saying, "There is no Indian like a dead Indian" is peculiarly applicable to the individual infected with tuberculosis. When we say that until he is dead he is apt to break out with some new manifestation of the disease we are not far from the truth. Four died, in the hospital, within a month after operation, all of miliary tuberculosis, 3 of them so proven by necropsy, giving a figure for the 28, of the 31 whose postoperative length of life is known, of 14.2 per cent. Within the first six months after operation (including the 4 mentioned above) 9, or 32.1 per cent. died, whereas a total of 14, or 50 per cent., succumbed within the first year. From this point, until the end of the sixth year, the death-roll drops rapidly, but we find that during the first six years after operation, 85 per cent. have died. Thus although we see that half of these unfortunates were gathered in by the end of the first year, and over three-quarters of them by the end of the sixth year, it is important to find that 3, or 10.7 per cent. died of tuberculosis between the ninth and eleventh years, a fact which warrants the belief that until at least ten years have elapsed after operation, no patient can be said to be cured. The facts here presented are somewhat different from those of other writers. Lapeyre[4] says that 75 per cent. of these patients are cured, and that a survival of the patients of from four to ten years after operation is to be expected. Brunt and Brungner[5] reported 56 per cent. of favorable remote results, while Haas[6] speaks of 45 per cent. of permanent cures. In my opinion these figures are misleading for the reason that the patients have not been followed over a sufficient number of years. Taking my own cases for a period of six years after operation I find that in a total of 58, of whom I know the definite results, 24, or 41 per cent., have died of tuberculosis.

An analysis of the particular manner in which the tubercle bacillus gave its death blow is illuminating. In 7, or 22.5 per cent., a general miliary process closed the scene, while in an equal number renal tuberculosis was the determining factor. Lung involvement came next in order with a percentage of 16.1 per cent. The cause of death in 10 others was given simply as "tuberculosis" without reference to the organs involved, while "meningitis" and "fistula in ano" each claimed one victim. That these 31 dying of tuberculosis were already doomed seems clear when we see how extensive was the involvement, either in the past or at time of operation, of organs other than those of the genital tract. In 15 (practically 50 per cent.) the lungs were already involved at time of entrance to the hospital, kidney and bone infections coming next in order with 4 cases each. Other tissues and organs such as larynx, joints, meninges, glands and middle ear each contributed their quota. Yet none of these cases, in spite of evidences of tuberculosis elsewhere, was considered by the surgeon as a bad risk.

Of the group now known to be living at periods of from two to twenty-six years after operation (sixty in all), the lungs were affected only 8 times, kidney 3 times, and other organs once or twice each. Among the thirteen heard from within the first year or two after operation, but trace of whom has since been lost, lung tuberculosis was found in three instances.

The extent of the genital lesions of the living and of the dead was about the same. In most a single epididymal infection was found, while the prostate and seminal vesicles were involved in about the same proportion of cases in all groups.

The urines of those now dead contained pus, blood, albumin and casts in various combinations in 77 per cent., while of the patients living the urine was pathologic in but 38 per cent.

The guinea-pig test of the bladder urine in these cases has been sadly neglected both before and after operation. Yet it is a point of the utmost importance, not only for purposes of diagnosis, but also of prognosis. If a positive test is obtained, it shows either that there is renal involvement, or that the bladder has become infected by way of the prostate. Even with the urine free from tubercle bacilli we may find it to contain pus, blood and albumin. These elements, in the presence of marked bladder irritability, may well lead us to suspect tuberculosis of the kidney, and if this exists that organ must be first dealt with. In eight out of ten of this series tubercle bacilli were found in the urine before operation. In six patients now living and seen by me, guinea-pigs have been inoculated with the bladder urine. Four, formerly negative, have since developed tuberculous kidneys and give a positive test. One patient whose kidney was removed for tuberculosis six years before the genital lesion developed now has a urine free from tubercle bacilli. Four other cases are likewise negative, and were so before operation. One of these has since had a relapse in the second epididymis.

Seventeen of the 32 patients seen by me have had a fresh outbreak of tuberculosis since the removal of their first epididymis. In 4 the second epididymis has become involved, while in 4 others kidney tuberculosis (bilateral in one case) has intervened. Three patients have developed ischiorectal abscesses with a persistent fistula in ano, 2 are now suffering from disease of the bone (one of the hip, one of the spine) and 1 case each of phthisis, corneal ulcer, glandular tuberculosis and funiculitis has been seen. In other words, the fire has not yet burned itself out.

Of the 31 who died of tuberculosis, 15 developed tuberculous foci after operation elsewhere than in the genital tract, and succumbed later to additional and more extensive exacerbations of the disease. Thirteen of the 32 patients seen by me have thus far presented a clean score except for the epididymal infection. In most instances they have gained weight and seem to be in perfect health. The remainder are or have been handicapped, as described above, by other manifestations of the disease. I have observed elsewhere[7] that azoospermia obtains in tuberculosis of the epididymis (even when unilateral) in 85 per cent. Further observations confirm this statement. I also remarked that the lesion in question did not disturb the sex function. This conclusion is also still sound. Even after double orchidectomy the adult seems to be unaffected as regards his masculinity. Two of our patients, so handicapped, asserted that they were perfectly normal from a sex point of view in regard to both desire and ability to perform the sexual act.

---

[4] Lapeyre: Arch. gén. de Chir., July, 1912, No. 7.
[5] Brunt and Brungner: German Cong. of Surgeons, 1901.
[6] Haas: Beitr. z. klin. Chir., 1901, xxx.

We now have the records of nearly 100 epididymectomies at the Massachusetts General Hospital. I have remarked elsewhere[8] that not one of these patients has yet been obliged to submit to a subsequent orchidectomy. This statement still holds true in spite of the fact that the testicle, in our experience, is clinically tuberculous in 44 per cent. of cases, and microscopically so, in cases of orchidectomy, in 66 per cent. In other words, where experience and judgment are exercised, the testicle need rarely be removed with the epididymis.

In sixty-nine of the patients analyzed here the prostate and seminal vesicles were found to be tuberculous at the time of entrance to the hospital. Many of those now living have since been examined by me at various intervals of time after operation. In most instances the induration, nodularity and tenderness of the prostate and vesicles, present before operation, has subsequently disappeared entirely, or decreased in extent. In a few the condition is the same as before operation. In two instances the process continued after operation, and formed an abscess which opened spontaneously, or was drained, with the establishment of a permanent perineal fistula, from which urine has leaked at times. This experience, although brief and incomplete, substantiates the belief which I have always held, namely, that the prostates (including seminal vesicles) which are markedly tuberculous had best be left alone, and, like those which are only slightly or moderately infected, will generally take care of themselves after removal of one or both epididymes. I regard attempts at complete excision of the tuberculous prostate and seminal vesicles as not only useless but impossible.

A broad view of the whole subect of surgical tuberculosis, and of genital tuberculosis in particular, demonstrates beyond question that, taken all in all, the odds are against the patient. The longer he can live and fight down any particular outburst of the disease the better able he is, in most instances, to overcome the next exacerbation. It all comes down to a question of immunity. Once fortified in this manner a patient can ward off an onslaught of the tubercle bacillus, which, under other circumstances, would get the upper hand in a short time. While we have all seen patients with surgical tuberculosis, who have fought single handed a winning battle for many years, we should not hesitate to bring to their relief the best of hygienic treatment, the regular and continuous administration of sandalwood oil, and the use of tuberculin. The latter should be given only after operation, must be given cautiously and intelligently, and should be employed for an almost indefinite time. Under these conditions whatever natural immunity the patient may possess, or has acquired, will be raised to the highest possible point, a factor which I believe will give the victims of this disease a better outlook in the future than they have had in the past.

SUMMARY

1. Tuberculosis of the genital tract is accompanied by old or active lesions in other organs in more than 55 per cent. of cases, most of them being in the lung.

2. The genital tract is usually first attacked in cases of genito-urinary tuberculosis.

3. Over 27 per cent. of 113 patients traced have died of some form of tuberculosis. Within a period of six years after operation 41 per cent. of 58 patients have died of this disease. Of the deaths from tuberculosis, 14.2 per cent. occurred within one month, 32.1 per cent. within six months and 50 per cent. within one year after operation. During the first six years 85 per cent. died, while between the ninth and eleventh years 10.7 per cent. succumbed. Miliary, renal and lung tuberculosis are, in order, the final types of the disease. A large majority of those dying of tuberculosis had had one or more outbreaks of the disease both before and after operation. My experience warrants the conclusion that until at least ten years have elapsed after operation, no patient can be said to be cured of tuberculosis.

4. The records of those now living show a much smaller percentage than do those of the dead, of other tuberculous processes before operation, but many of them have since developed other foci. As 81 per cent. of those examined and 28.5 per cent. of those corresponded with are still within the six-year period, in which I found that 85 per cent. of deaths had occurred, it is to be expected that the deaths in this group, *from* tuberculosis, are not yet at an end.

5. While genital tuberculosis, even if unilateral, results in sterility in most cases, neither the disease nor the operation for its relief, including double orchidectomy, seems to impair masculinity in any way.

6. In none of my cases of epididymectomy has the patient returned for a subsequent orchidectomy, although in three instances (one has already been mentioned) there has occurred a tuberculous funiculitis, simulating testicular involvement.

7. My experience has shown that although the prostate and seminal vesicles are involved in most cases of epididymal tuberculosis, their condition will improve or heal after removal of the epididymis. Radical surgical treatment of these organs is unnecessary and unwise.

8. The long life and good general condition of many of my patients, even although suffering from repeated outbreaks of tuberculosis, shows that the survival of the patient depends largely on his ability to immunize himself to the disease. Therefore our efforts must be directed, not merely toward suitable surgical treatment, but also toward helping him develop that immunity which is so important. For this purpose hygiene, sandalwood oil and tuberculin are essential.

374 Marlboro Street.

ABSTRACT OF DISCUSSION

Dr. B. C. Corbus, Chicago: I am particularly interested in the point that Dr. Barney makes with reference to establishing an immunity in these cases. During the last two years I have been interested in the work of Dr. Karl von Ruck of Asheville, N. C., with regard to the immunization of children and adults in general tuberculosis, and have recently done some work in his laboratory. I came to realize the possibility of immunization before surgical interference is attempted. We all realize how necessary it is to put our patients in the best possible condition to withstand any kind of a surgical operation, no matter what the infection may be, but most surgeons apparently desire to operate as soon as possible in a case of surgical tuberculosis. That it is absolutely necessary to remove every caseous focus that exists, is granted. In immunization before operation, the idea is to use a vaccine that contains all the particles of the tubercle bacillus in proper proportion, a vaccine that will stimulate the formation of antibodies in every part, the patient's serum being tested for these antibodies before operation, so that one can demonstrate whether the patient has a specific resistance. This seems to me to offer more advantage than an immunization afterward.

---

[7] Barney, J. Dellinger: Boston Med. and Surg. Jour., 1912, clxvi, No. 11.

[8] Barney, J. Dellinger: Boston Med. and Surg. Jour., 1913, clxviii, No. 25.

Dr. Robert H. Herbst, Chicago: I agree with Dr. Barney that if not in all, in most cases of genital tuberculosis we find the process beginning in the epididymis. The reason for this is obvious if we stop to consider that in the epididymis we find small tortuous blood-vessels on the walls of which the tubercle bacillus readily implants and forms a focus of infection. From a therapeutic point of view I think that it is well to divide cases of genital tuberculosis into two classes: first, those in which the process is limited to the epididymis; secondly, those in which we have to deal with an involvement of the cord, prostate and seminal vesicles. In the first class epididymectomy or orchidectomy with removal of a part of the cord will, as a rule, be followed by good results. In the second class, however, in which the process has extended to the lower end of the genital tract, the patient is far better off without surgery and instead should be relegated to tuberculin treatment with the usual hygiene for tuberculosis.

Dr. J. H. Cunningham, Jr., Boston: I have recently looked up the necropsy records of the Boston City Hospital in cases recorded as tuberculous epididymitis. In twenty such cases a microscopic examination was made of the prostate and seminal vesicles. It is interesting to note that, out of these twenty cases, in eleven the disease was bilateral in the epididymis, and in nine it was unilateral. Of these twenty cases the prostate was involved in eleven; the seminal vesicle also in eleven. When the vesicle was involved the prostate was also involved in each instance. Of the eleven bilateral cases of tuberculous epididymitis, involvement of the seminal vesicle was bilateral in seven and unilateral in four. Of the twenty cases the testicle was involved in only four. In two of the cases involving the epididymis, vesicles and prostate the lesion in the epididymis was caseous, suggesting primary tuberculosis in the epididymis, there being an acute miliary infection of all the visceral organs in these two instances. There are unquestionably cases of tuberculous epididymitis in which it is impossible clinically to detect tuberculosis in the prostate or seminal vesicle even when it is there, and the successful dealing with the condition within the scrotum by surgical measures, allows the disease in the prostate and vesicle to remain quiescent or at least not to progress to the point of producing symptoms in most instances. Especially is this true if these patients receive tuberculin and carry out the hygienic measures which have been proved to be beneficial in controlling tuberculosis wherever located. This postoperative treatment is most important after the primary focus is removed, because clinically, as in these twenty cases in which necropsy has been performed, we have found that the majority of the patients with tuberculous epididymitis have associated tuberculosis in the vesicles, prostate or elsewhere in the body.

Dr. E. L. Keyes, Jr., New York: I have seen but one case of relapse of tuberculosis in the testis after removal of the epididymis. The patient had had one epididymis removed for tuberculosis two years before. At that time he had a tuberculous ischiorectal abscess and fistula which were not touched. The scrotum healed after the removal of the epididymis, the testicle being left in, but broke open six months later. He returned to the hospital, with an extension of the process around the rectum, involvement of the opposite epididymis and a relapse in the testicle which had been left behind after the removal of the epididymis. I agree with Dr. Barney that the testicle can always be saved when it is mechanically possible to remove the epididymis and still leave the testicle some blood-supply, but I wish to report this single instance of recurrence after apparent healing subsequent to epididymectomy.

Dr. J. D. Barney, Boston: I understood Dr. Herbst to say that in cases in which the prostate and vesicles were involved, surgery had better not be done. We have found in a previous analysis of a great many cases that in 75 per cent. the prostate and seminal vesicles are involved, and I made the remark then that probably a great many more were involved that we could not detect because it is possible in the vesicle and prostate to get early foci which cannot be felt with the finger. I think 75 per cent. is conservative. If one goes on the basis of these figures and if one adopts Dr. Herbst's belief it leaves a very small percentage that can be operated on. I have shown the results in a great many cases in which the prostate and vesicles were distinctly involved before operation and in which they are now so nearly healed that it is very hard to detect any tuberculous foci in them. That, it seems to me, is the answer to this objection.

OBSERVATIONS OF THE RESULTS OF SEVEN MONTHS' EXPERIENCE WITH SALVARSAN IN THE TREATMENT OF SYPHILIS

KENT NELSON, M.D.
Surgeon, United States Military Prison
AND
EDGAR F. HAINES, M.D.
Assistant Surgeon, United States Military Prison
FORT LEAVENWORTH, KAN.

In March, 1914, we published[1] the results of our observations with neosalvarsan in the treatment of syphilis. This report showed that after five intravenous injections of neosalvarsan combined with intensive mercurial treatment, the Wassermann reaction had become negative in 33.3 per cent. and remained positive in 66.7 per cent. of the cases treated. These results were considered so poor that it was believed a further use of neosalvarsan at this institution was not warranted. Since Jan. 10, 1914, salvarsan has been substituted for neosalvarsan, and the results of that substitution are here recorded.

Seventy-four cases of syphilis have been treated at the Prison Hospital during the past seven months. Twenty-five of these cases have been selected for report in this paper. These twenty-five cases have received their entire treatment at the Prison Hospital, and the original and all subsequent serum tests have been performed by the same medical officer (Capt. Charles Craig, Medical Corps, U. S. Army). In the remaining forty-nine cases the treatment was started elsewhere, the original Wassermann test having been made by other medical officers; in short, the treatment of these cases was simply continued at this institution.

Each patient here reported has received four intravenous injections of 0.6 gm. of salvarsan and twelve intramuscular injections of 100 mg. of the salicylate of mercury. The salvarsan has been given at ten-day intervals, the mercury, two injections a week. No bad effects from the intramuscular injections of the mercury have been noted. The prisoners here are all engaged in active outdoor work, and state that they have felt no discomfort in the muscles following injections. The intravenous puncture has been employed in each administration of salvarsan.

---

[1] Nelson, Kent, and Haines, E. F.: Observations of the Results of Nine Months' Experience with Neosalvarsan at the United States Military Prison Hospital, Fort Leavenworth, Kan., The Journal A. M. A., March 28, 1914, p. 989.

Table 1 shows that no reaction followed the administration of salvarsan regardless of the stage of the disease. It has been stated by some that there are a greater number of reactions following the use of salvarsan than when neosalvarsan is used. The cases treated at this hospital do not bear out this statement. We consider all cases severe in which the temperature is above 102 F., with or without other symptoms; moderate, when the temperature ranges from 100 F. to 102 F.; mild, normal temperature to 100 F. Cases are deemed as having no reaction when there are no high temperature and no symptoms.

TABLE 1.—REACTIONS ACCORDING TO THE STAGE OF DISEASE

Stage of Disease	Number of Cases	Total Number of Injections	Reactions Severe	Moderate	Mild	None	Percentage of Negative Reactions
Primary	1	4	0	0	0	4	100
Secondary ..	17	68	0	0	0	68	100
Tertiary	1	4	0	0	0	4	100
Latent	6	24	0	0	0	24	100
Total	25	100	0	0	0	100	100*

* Average negative.

An analysis of Table 2 shows that 64 per cent. of the cases here reported have become negative and 36 per cent. remained positive. Our report on neosalvarsan showed that after each patient had received five intravenous injections, combined with intensive mercurial treatment, 33.3 per cent. became negative, and 66.7 per cent. remained positive. In other words, with salvarsan we have obtained nearly twice as many negative reactions as with neosalvarsan, 64 per cent. of the cases becoming negative against 33.3 per cent. with neosalvarsan. Five intravenous injections of neosalvarsan were used, where only four of salvarsan were given. It was stated in our report on neosalvarsan that the results of our work with that drug did not seem to warrant the belief that neosalvarsan should be given in the proportion of 3 to 2 of salvarsan, but that it should be given either 6 or 8 to 2. The results that have now been obtained with salvarsan seem to prove this statement, for four injections of salvarsan have given nearly twice as many negative Wassermann reactions as did five injections of neosalvarsan.

TABLE 2.—THE RESULTS OF TREATMENT WITH SALVARSAN ON THE COMPLEMENT-FIXATION TEST IN THE VARIOUS STAGES OF SYPHILIS

Stage of Disease	Total Cases	Became Negative No.	Per Cent.	Remained Positive No.	Per Cent.
Primary	1	1	100	0	0
Secondary	17	12	70.7	5	29.3
Tertiary	1	0	0	1	100
Latent	6	3	50	3	50
Total	25	16	64	9	36

Repeated Wassermann tests have been made in all the cases here reported, all by the same medical officer (Capt. Charles Craig) who likewise made all of the serum tests of the cases reported in our work on neosalvarsan. We have thus secured an absolute uniformity of technic and interpretation of the serum reactions, thus giving accurate data regarding the results of our treatment as indicated by the Wassermann reaction.

Table 3 shows that out of 16 cases that became negative, 5 were during the first month, 9 were negative by the second month, 13 by the third month, and 15 at the end of the fourth month. In other words, 15 of the 16 negative results were obtained by the end of the fourth month. In our report on observations with neosalvarsan, a similar table to Table 3 of this paper showed that out of 68 cases 23 became negative. One the first month, 1 the second, none the third, 3 the fourth, 3 the fifth, 4 the sixth, etc. In other words, at the end of four months, 5 of our cases out of a total of 23 negative had shown a negative reaction; or, more briefly stated, with neosalvarsan 21 + per cent. of our negative cases showed the negative reaction within four months, whereas with salvarsan 93 + per cent. of the negative cases showed the negative reaction within four months. This demonstrates very clearly the rapidity of action of the two drugs.

TABLE 3.—RELATION OF THE STAGE OF SYPHILIS TO THE TIME OF DISAPPEARANCE OF COMPLEMENT FIXATION AFTER TREATMENT WITH SALVARSAN

Stage of Disease	Total Cases	Month 1st	2d	3d	4th	5th	6th	7th	Total Negative
Primary	1	..	..	..	1	..	..	..	1
Secondary	17	4	3	3	1	..	..	1	12
Tertiary	1	..	..	..	..	..	..	..	..
Latent	6	1	1	1	..	..	..	..	3
Total.......	25	5	4	4	2	..	..	1	16

TABLE 4.—RELATION OF THE INTENSITY OF THE COMPLEMENT FIXATION TO THE DISAPPEARANCE OF THE REACTION AFTER TREATMENT WITH SALVARSAN

Character of Reaction *	Total Cases	Became Negative No.	Per Cent.	Remained Positive No.	Per Cent.
++	14	6	42.8	8	57.2
+	6	6	100	0	0
+—	5	4	80	1	20
Total....	25	16	64	9	36

* A ++ reaction represents an absolute inhibition; a + reaction, any degree between 75 per cent. and absolute inhibition; a + —, any degree between 50 per cent. and absolute hemolysis.

A study of Table 4 shows that the stronger the serum reaction, the fewer cases that became negative. With a ++ reaction 42.8 per cent. became negative, with a + reaction 100 per cent., and with a +— 80 per cent. These results do not differ in any material way from those obtained by us with neosalvarsan.

Table 5 shows that in the 6 negative ++ cases all of the negative reactions were obtained by the end of the fourth month; that all of the + cases were negative by the end of the third month; and 3 out of the 4 negative +— cases were negative by the end of the second month. In our report on neosalvarsan 40 ++ cases were recorded, 13 became negative, but

TABLE 5.—RELATION OF THE INTENSITY OF THE COMPLEMENT FIXATION TO THE TIME OF DISAPPEARANCE OF THE REACTION AFTER TREATMENT WITH SALVARSAN

Character of Reaction	Total Cases	Month 1st	2d	3d	4th	5th	6th	7th	Total
++	14	1	1	2	2	..	..	..	6
+	6	2	2	2	..	..	..	..	6
+—	5	2	1	..	..	..	..	1	4
Total......	25	5	4	4	2	0	0	1	16

at the end of the fourth month only 2 of the 13 had shown the negative reaction. Nineteen + cases were reported, 6 of which became negative, 2 showing the negative reaction at the end of the fourth month. Nine +— cases were recorded; 4 became negative, only one of which showed a negative reaction by the end of the fourth month. A study of Table 5 shows clearly as does Table 4 the more rapid action of salvarsan.

CONCLUSIONS

1. Four injections of salvarsan combined with intensive mercurial treatment have given nearly twice as many negative serum reactions as did five injections of neosalvarsan with mercurial treatment.
2. The best authorities state that with our present methods of treating syphilis we cannot expect to obtain over 70 or 80 per cent. of negative Wassermann reactions. Salvarsan has given us 64 per cent. of negative serum reactions, whereas neosalvarsan gave 33.3 per cent. in nine months.
3. The drug should be used which will bring about the best results in the shortest possible time. We believe that our work with neosalvarsan and salvarsan will clearly demonstrate that salvarsan is the drug.
4. A greater number of reactions should not follow the use of salvarsan.
5. The complement fixation is of the greatest value in diagnosis, or as an indicator to the results of treatment.
6. We believe that the results reported in this paper are of such a character as not to warrant the further use of neosalvarsan in the military service; and to all others who desire to give their patients the best possible results in the shortest possible time.

FACTORS GOVERNING VASCULAR DILATATION AND SLOWING OF THE BLOOD-STREAM IN INFLAMMATION *

PAUL G. WOOLLEY, M.D.
CINCINNATI

Inflammation is a process characterized by symptoms which have been referred, directly and indirectly, to changes in caliber of blood-vessels, and to other less definite changes which are grouped under the term "changes in permeability" of vessel-walls. The changes in caliber have been used in explanation of the increased redness and of the apparent increase in temperature of an inflamed area. The phenomena of exudation, including emigration and diapedesis, have been referred to "changes in permeability." These latter phenomena always follow the former.

Vascular dilatation is a normal, physiologic process by which the blood-supply of an organ is increased during physiologic activity. It is an adaptive mechanism. It occurs under any circumstances which bring about increased metabolic activity, and appears under all sorts of conditions which are unassociated with the symptoms or morphology of inflammation. Nevertheless, it is a fundamental phenomenon of the inflammatory process; therefore, in discussing that process, it is necessary to offer an explanation of vascular dilatation.

It has been said that the dilatation of the blood-vessels is due to paralysis of the vasoconstrictors, to irritation of the vasodilators or to both; or, finally, to paralysis of the muscular fibers of the arterioles. It was shown by Cohnheim, however, and the fact has been substantiated by more recent workers, that the vasomotor nerves play no essential part in the phenomenon of dilatation in inflammation. Cohnheim said that "the vessels are wont, under the influence of the agents employed by us, to dilate very much more than is ever the case in paralysis of the vasoconstrictors or stimulation of the vasodilators," and he also called attention to the fact that if croton-oil were rubbed on a rabbit's ear, a considerable time might elapse before the evidences of dilatation appeared. If the nerves were active the dilatation should appear promptly and not be delayed. The reaction is delayed. Adami suggests that "section of all the nerves passing to any region of the body should have such an effect, that injury should be unaccompanied by the ordinary vascular reaction," were the nerves alone the cause. The reaction, however, occurs. Moreover, while it is true that an active hyperemia may be induced by removal of vasomotor influences, the congestion may be increased by the use of croton-oil or heat. The events occur in the same order and in the same degree, though at a different rate, if all nervous influences be excluded. Removal of nervous influences, therefore, has no essential effect on the vascular dilatation of inflammation, and the whole inflammatory process may proceed normally in the absence of nervous activities. So it appears that none of the phenomena of inflammation are governed by the nervous system, and that nervous influences have the same importance in inflammation as in other processes, namely, in merely modifying the process—increasing or decreasing the rapidity of its production.

Cohnheim believed that the phenomena of inflammation were the results of molecular changes in the vessel-walls, and definitely stated his belief in the chemical nature of the process. He said that a change of chemical character is undergone by the vessels in inflammation, and that this brings about atony of the muscular coat, which permits dilatation, increase in frictional resistance, and permeability. It was only many years after these statements were made that any definite information commenced to accumulate as to the actual course of events.

Gaskell and Langley have suggested that vascular dilatation "in muscle and perhaps elsewhere" might be due to products of metabolism formed by the activity of the tissue, and Gaskell, later, showed that lactic acid causes dilatation of the vessels of the frog and that even in very low concentration, acids tend to produce vasodilatation. Still later, Bayliss showed that lactic acid and carbonic acid were equally effective in causing dilatation of blood-vessels. Schwarz and Lemberger, and later, Ishikawa, showed that weak acids, which are produced as a result of increased cellular activity, bring about vascular dilatation. In 1907 the evidence had accumulated to such a degree that Verworn formulated the rule that "the increase of the blood-supply in a functionally active organ must be based on a physical self-regulation which takes place as a result of the fact that metabolic products of the tissue cells influence the cells of the vessel-walls in that part so that the vessels dilate and more lymph is formed."

---

[*] From the Department of Pathology, University of Cincinnati.

[*] In the following pages I have attempted to correlate a considerable amount of experimental data which has accumulated on the subject of vascular dilatation.

In 1912, Starling said that the great increase in the blood-flow through muscles during muscular exercise is probably brought about largely by chemical means. "It has been shown," he said, that "the presence of blood containing lactic acid or carbon dioxid causes a marked dilatation of the blood-vessels of a limb." Hooker called attention to the fact that carbon dioxid, in minimal effective amounts, always relaxes vascular muscle. Still more recently Markwalder and Starling have shown experimentally that carbon dioxid is directly effective in producing dilatation of the coronary arteries and of the heart itself. They have also shown that "the most potent agent in causing dilatation of the coronary vessels is nonvolatile metabolites produced by the heart muscle.[1]

It seems possible that the vascular dilatation of inflammation is merely an exaggeration of a normal process and that the differences which exist between the two are due to variations in the duration of the circumstances which condition the reaction, and in the intensity of the reaction. The matter may be stated in this way: When sufficient chemical damage is done to the vessel-walls to produce a dilatation of a certain degree, the same influence which conditions the dilatation produces other changes in the vessel-walls which permit of exudation. In other words, the dilatation is merely the expression of the action of influences which are acting, in point of time and intensity, beyond the physiologic limits. Under physiologic conditions the blood-flow is increased during the dilatation. Under abnormal conditions it is first increased and then slowed. It is only when the point of slowing beyond normal limits is reached that the process becomes pathologic. Under physiologic circumstances an increase of metabolites causes dilatation, and this effect is due to changes in the vessel-walls which make possible a more rapid flow of blood through the vessels, and an increased oxygen delivery to the tissues, together with increased water transport (as is shown by the increased lymph-flow). In inflammation the dilatation is more marked, is less transient, the blood-stream is eventually slowed, and, beside an increased water transport, there is also a movement of blood-cells which follow the stream of water through the vessel-walls.

Perhaps this may be stated as follows: After an injury to any organ or tissue the local conditions are such that increased metabolic activity is required. There is more than the physiologic amount of useless material to be removed. Some of this must be so changed, chemically, that it can be used as food by neighboring cells. Useless material must be carried away to the sewers of the tissues—largely the lymphatics. To do this work the healthy tissue-cells must increase their activities, and, as a result of this, there must be a local increase of metabolic end-products (metabolites), including carbon dioxid and other substances which latter depend partially on the tissue involved. Any disturbance of equilibrium in the tissues produces profound variations in the chemical activities of the cells, with the result that they overproduce substances which, reacting on the intracellular and intercellular substances, change their physical state. Even the movements of migratory cells are modified under such circumstances. It is such changes in chemical activity which lead to increased production of carbonic acid and lactic acid, which, as has been shown, produce vasodilatation.

Many writers, and most recently and most convincingly, Martin Fischer, have shown how acids influence water absorption and secretion. When tissue is destroyed and when metabolism is increased an accumulation of acids tends to occur. The presence of acid causes swelling of the protoplasm of all the cells in the zone of action. Vascular and extravascular cells and intracellular substance are alike involved. This swelling of the colloidal substances produces several effects: it leads to a decrease in tone of the musculature of the blood-vessels, and it increases the viscosity of the endothelium.[2] The loss of tone is the important factor in the dilatation of the vessels, for were the tone to remain normal it is probable that no more than a very transient dilatation would take place in any vessel possessing a muscular coat. A transient dilatation is a physiologic process. Loss of muscular tone depends, apparently, on physicochemical conditions in the muscle-fibers which render them less ready to contract. It amounts to fatigue, and is quite analogous to the loss of cardiac tone produced by fatigue of the myocardium, which results in cardiac dilatation. (After all, the heart is merely a modified blood-vessel so that what is true for other parts of the circulation should be equally true for it.) A fatigued muscle—cardiac, vascular, or skeletal—is more easily stretched than a normal one. It seems then, in the heart as in the blood-vessels, that accumulation of metabolites or lack of oxygen leads to conditions which are analogous to fatigue, and when in this condition the muscle-fibers are capable of being stretched by a normal blood-pressure or even by one which is lower than normal.

Dilatation of blood-vessels is due then to physical and chemical changes in the musculature which are produced by deficient oxidation and accumulation of metabolites including carbon dioxid. Normally this dilatation is more or less transient and is unassociated with exudation. In inflammation it is more or less permanent and is associated with exudation.

Following dilatation, in inflammation, the blood-stream becomes slower than it normally is in the absence of the inflammatory process. For many years this phenomenon has been attributed to increased frictional resistance between the blood (particularly the blood-cells) and the vessel-walls. It has been said, for instance, that the leukocytes act as though they were sticky. And yet no satisfactory explanation has been used to account for this stickiness. Still, it seems, the accumulated evidence makes it seem possible to discuss this phenomenon in more fundamental terms than was formerly possible, and to apply the physicochemical facts of dilatation to this question of slowing of the blood-stream.

In studying this phenomenon (of slowing) under the microscope one of the earliest things noticed is a moderate swelling of the endothelial cells of the capillaries, a swelling which resembles in some respects that seen when one adds a drop of dilute acetic acid to a suspension of cells of any origin. This endothelial swelling precedes, though briefly, the slowing. Somewhat later the blood-cells themselves begin to swell, and when both these phenomena of swelling are noticeable the stream has already begun to slow. This swelling is due to the presence of acids, which, as is well known, cause swelling of the colloidal substances of the tissues, including the intercellular substances. It is entirely possible that other substances than acids (urea?) may produce it. However that may be, it has been shown by many writers that the various acids which occur normally and pathologically in the tissues, are active in this respect. It seems to be true that in simple edema the swelling is due to the presence of various acids.[3] Bechhold says that edema fluid from which the carbon dioxid is removed is acid to phenolphthalein, and Strassburg and Ewald had previously shown that the carbonic acid content of edema fluid is higher than that of venous blood. Moreover, Hoppe-Seyler found, in similar fluids, valerianic, succinic, butyric and lactic acids. If this is true in simple edema fluids it is certainly equally true of the liquids present in such an abnormal process as inflammation, in which metabolism is modified to a greater degree. We should expect to find the same acids present in greater amounts, and we might expect to find others also, for instance, beta-oxybutyric and aceto-acetic acids.

---

[1] Kubota (Mitt. med. Gesellsch. Tokio, 1913, xxvii, No. 21) has recently said that the vascular dilatation occurring as a result of stimulation of the vasodilators is dependent on an increase in acidity in the products of metabolism (Ztschr. f. Biochem. u. Biophys., 1914, xvi, 194.)

[2] It is of course obvious that the question of viscosity in this connection is an extremely complicated one. Nevertheless, there is evidence that variations in acidity or alkalinity produce increases of viscosity in blood-serum and, therefore, in the tissue (cellular) colloids.

Many writers have shown that increases of carbon dioxid or decreases in oxygen in the blood are productive of cellular swelling. Limbeck says that the volume of the blood-corpuscles varies according to the carbon dioxid content. Koranyi and Bence commented on the fact that, in the presence of carbon dioxid, the blood-corpuscles take up water from the serum, and, recently, L. F. Henderson has stated the modern conception of the normal influence of carbon dioxid on the blood-cells. He says:

> In each complete cycle of the circulation there occurs a complete cycle of changes between the constituents of the corpuscles and the plasma. As the blood flows through the tissues and receives CO_2, the volume of the red blood-corpuscles increases from entrance of water coming from the plasma, chlorin simultaneously passing in the same direction. In the lungs, with the escape of carbonic acid, the process is reversed. There seems to be no doubt that this process is largely dependent on changes in reaction, accompanying changes in the concentration of carbonic acid.

If this be true in the normal process, the same features of cellular swelling must be more marked in the abnormal, especially since the latter are largely accentuations of the former.

It must be apparent that, aside from any changes in consistency, this cellular swelling must produce a purely mechanical effect on the rate of the blood-flow. For if endothelial cells and blood-corpuscles increase in volume then the blood-stream must be interfered with to at least a certain minimal extent. This is of some importance, because a maximum of oxygen is needed at the point of injury, and any decrease in the rate of the blood-flow will diminish the supply of that element. Araki and Zillessen have shown that every loss of oxygen results in increased production of acid.

There is abundant evidence that carbonic and other acids have other effects than mere increase in volume of the cells. The one which interests us at this point is viscosity changes. Bechhold says, in this connection, that acids bring about increased viscosity of albumin. He says, further, that the ionization of albumin is increased by acids, and that the albumin ion shows a higher viscosity than albumin in the undissociated state. Hoeber has brought evidence that increases of carbon dioxid in the blood run parallel with hydrogen-ion concentration, and Pauli and Handovsky have reported that ionization of serum albumin depends on hydrogen-ion concentration, which in its turn is the cause of increased viscosity. Adam found that saturation of the blood with carbon dioxid produces a maximum increase in viscosity, and he further found that if the carbon dioxid were replaced by oxygen, the viscosity would sink to a minimum, and again increase with carbon dioxid additions. Koranyi and Bence likewise showed that the viscosity runs parallel with the carbon dioxid content. Blunschy said that ventilation of the blood reduces viscosity and reported that although seven hours of skiing lowered the viscosity of the blood 14 per cent. one and a quarter hours of forced exercise in a closed room raised it 4.5 per cent. He also found that venous blood-corpuscles exhibited a higher viscosity than arterial ones. Determann and Hess demonstrated the fact that the blood was increased in viscosity during stasis. W. Ostwald states that a pure albumin, prepared from blood, reacts exceedingly promptly to small traces of acids. He has demonstrated that in albumin solutions the changes are enormous. For instance, an addition of 0.015 normal hydrochloric acid increases the viscosity from 1.0623 to 1.2937. He further says that the maximum increase occurs with 0.02 normal hydrochloric acid. With other acids the maximum is higher.

There are numbers of other citations that might be used in this connection. Those given will, however, suffice for the point. They show, I believe, that decrease in the rapidity of the blood-stream in inflammation is the result of two factors: increase in volume of the cells of the blood and of the endothelial cells lining the blood-vessels, and increased viscosity of the blood as a whole. It has been suggested that both these factors depend on abnormal production of carbonic and other acids.

During exercise, in the normal individual, the carbon dioxid production runs above the normal during rest. This increase is sufficient, as has been shown, to produce a transient vascular dilatation by which the oxygen supply is increased sufficiently to take care of the moderate acid increase, and to counteract it. In the inflammatory process, however, the acid accumulation is too rapid to allow of immediate drainage. The cells are rapidly affected, and the circulation is slowed. This results in still greater disturbances of oxidation and other acids than carbonic acid accumulate. These acids produce still greater changes in viscosity and swelling and eventually the circulation is completely stopped. The experiments of Amberg and Knox, Amberg, Loevenhart and Grove, and Loevenhart and Eyster, support this conception. Loevenhart and Grove produced evidence that the oxygen in such compounds as sodium iodosobenzoate and iodoxybenzoate is physiologically active and capable of being utilized by the body for purposes of physiologic oxidations, and, later, Loevenhart and Eyster showed that those substances give up some of their chemically active oxygen in passing through the tissues. Amberg and Knox showed that such substances reduce the inflammatory reaction when they are introduced into the circulation.

---

[3] If the recent statements of Michaelis (Deutsch. med. Wchnschr., 1914, No. 40, p. 1170) holds, then there is some basis for believing that normal water transport from the capillaries is a matter of variations in acidity. Michaelis says that while the blood maintains an exact grade of alkalinity ($H = 0.45 \times 10^{-7}$) the tissues are neutral ($H = 1.5 \times 10^{-7}$).

It is much more in evidence that sputa presenting a distinctly lymphocytic picture with a positive albumin content in the absence of tubercle bacilli speak very probably for tuberculosis, but in the absence of albumin in an otherwise positive lymphocytic sputum the evidence is not quite so conclusive and yet it points very strongly as being of tuberculous origin.

It may be of interest at this point to refer to a few case histories in which the sputum examination under the microscope gave a field in which the small mononuclear lymphocytes predominated, but with an absence of the tubercle bacillus or only an occasional one after many fields had been scrutinized, all controlled by a positive albumin content.

Case 1.—Miss F., aged 24, came under my care Feb. 14, 1912, a fairly well-developed girl, general appearance good, complaining of a slight pain in the back and a tired feeling, giving the following family history: Father aged 61 in good health; mother aged 60, well. Three sisters and one brother living and well. One brother died four years ago at the age of 30 from stomach disease and another died ten years ago at the age of 19 from some pulmonary disease, very probably tuberculosis. The patient states that she has never been sick excepting in childhood at the age of 3 when she had a severe attack of whooping-cough. As stated above, the patient's appearance was good, fairly well-nourished, skin normal, no cachexia. Physical examination on percussion gave a slightly higher note in the interscapular region to the left of the spine extending upward toward the left apex; over this area the resonance was slightly impaired and the whispering voice somewhat intensified; anteriorly above and below the clavicle the note was also somewhat higher; no râles, pulse 94, temperature 98.8, time 4 p. m. left pupil dilated; systolic blood-pressure, sitting, 100.

Diagnosis: Incipient pulmonary tuberculosis. Sputum Examination: In looking over many fields an occasional tubercle bacillus was found, but of all the most characteristic feature was the pronounced lymphocytic picture. Every separate field was full of the small mononuclears averaging about 90 per cent. of the total cellular element, and in addition by chemical examination the sputum was found to be massively albuminous. Patient succumbed in January, 1914, from generalized tuberculosis.

Case 2.—Mrs. McC. Physical examination warranted a diagnosis of pulmonary tuberculosis first stage and examination of the sputum elicited the following facts: Owing to the tenacious consistency of the sputum, it was necessary to mix it with an equal amount of distilled water, and from this diluted expectorated material, smears were prepared. All these smears when stained gave a most distinctly lymphocytic picture, the small mononuclears being everywhere greatly in excess. In looking over each field very carefully, no tubercle bacilli were observed, when in the tenth field a single bacillus, morphologically and tinctorially, was seen. Now by actual count 250 more fields were most carefully scrutinized, but not another single bacillus could be demonstrated, and besides the preponderance of small mononuclear lymphocytes, the sputum was found to be massively albuminous. I now began to entertain some doubt if I had really seen a bacillus. Might not that have been an artifact? To satisfy myself on that point, I submitted some of the sputa to the antiformin method of examination. To 10 c.c. of the diluted sputum, I added drop by drop pure antiformin until a clear solution was obtained; then 8 c.c. of 95 per cent. alcohol were added and the whole centrifuged and from this sediment a smear was prepared in which I found five distinct groups of bacilli with from four to six bacilli in each group.

Case 3.—Mr. W., formerly of this city but now residing in California, consulted me, June 25, 1912. Patient was in fairly good health doing an office business and at his desk every day. He had a slight hacking cough of about a month's duration and he requested that an examination be made and that a prescription be given to stop the cough. Pulse was 86, temperature 98. Physical examination gave slight evidence of a bronchitis. The sputum examination did not show a single bacillus in a careful scrutiny of innumerable fields, but everywhere there was a distinct lymphocytosis of the small mononuclears, besides moderate amount of albumin. Eight days after I injected 1 mg. Koch's tuberculin O. T. intracutaneously, which was followed by a most positive reaction. A sputum examination made from expectoration secured two days after this positive finding gave the same lymphocytic picture as in the sputum examined ten days before, with the same moderate amount of albumin; but in addition many tubercle bacilli, chiefly in groups, were demonstrable.

Case 4.—Miss V., aged 19, living out of town, first consulted me March 21, 1914. Physical examination permitted the diagnosis of pulmonary tuberculosis, slightly past incipiency. At that time the clinical picture was at variance with the physical findings, the patient being apparently a very well-nourished girl, but now the case is very active. At the first visit the sputum examination showed a most distinct predominance of the small mononuclears and in addition a moderate amount of albumin. This in itself was so pronounced and positive that the sputum was labeled as that obtained from a positively tuberculous person. After long and careful search I was finally rewarded by finding a single bacillus. By the antiformin method, I was able to demonstrate positively the presence of the tubercle bacillus; six were found in all, four singly and two in a group.

Case 5.—Miss M., nurse, aged 32, came first under my care in June, 1913. There were no cough, no pain and no loss in weight, only a little tired feeling. Pulse was 88, temperature 98.4. Physical Examination: Apex, right, posterior muscle spasm, harsh breath sounds, some sonorous râles; anteriorly right, fremitus distinctly increased, prolonged expiration, harsh breathing and a few fine inspiratory râles. A dry pleurisy developed which under immobilization of the chest wall with adhesive straps gradually subsided. Diagnosis: Incipient pulmonary tuberculosis with a secondary pleurisy. Sputum examinations at that time gave the following findings: Not a single bacillus could be found after examination of a countless number of fields, but a distinctively lymphocytic picture was everywhere plainly noticeable, and besides a moderate amount of albumin was present.

The parallelism between the lymphocytic sputum picture on the one hand, and the positive albumin content of the expectorations on the other, was so evident in all of these histories, and in nearly every one of the above-conducted chemical and microscopic examinations, that a fairly positive diagnosis of pulmonary tuberculosis could truthfully be made on these findings alone.

On the remaining sputum examinations, 55 in all, which were bacilli negative, the following observations were made: Seventeen did not show tubercle bacilli, albumin or lymphocytosis; consequently they were all labeled as sputum samples secured from positively non-tuberculous persons. In 36 of the remaining 38 specimens, a negative bacillus finding was recorded; of 2 no record can be found. In 4 of this series the sputum was too bloody to warrant an albumin test; in 7 others the albumin content was not recorded; the remaining all showed albumin in variable amounts, and as to the cellular constituents of the sputum of the last series, I can state that in 14 the lymphocytic picture was not clearly studied or accurately noted, in 5 a distinct leukocytosis prevailed, and the remaining showed no preponderance of either small or large lymphocytes or of leukocytes.

From these observations and studies made both chemically and microscopically on 199 samples of sputum secured from suspected tuberculous persons, it is reasonable to permit a justification of the following conclusions:

1. A sputum lymphocytosis showing under the microscope 50 per cent. or more of the small mononuclear leukocytes (lymphocytes) with a moderate amount of albumin by chemical test speaks very strongly for the presence of a pulmonary tuberculosis.
2. In preincipient or incipient cases of pulmonary tuberculosis a lymphocytic sputum is usually present with a greater or lesser albumin content; in this the tubercle bacillus may be entirely absent or only an occasional bacillus found.
3. The presence of the mononuclear lymphocyte in sputum in preponderant amounts and a positive albumin test, is simply the forerunner or near the beginning of positive findings, for the tubercle bacillus if not already present in the expectorations will soon be found.
4. In a sputum giving a lymphocytic picture in the absence of tubercle bacilli, a positive albumin content has been demonstrated; this is confirmatory evidence that the sputum is that from a person suffering from pulmonary tuberculosis, and hence:

A careful microscopic study of every sample of sputum under examination should first be made for either the presence or absence of the tubercle bacillus; if this is negative and with a preponderance of the small mononuclear leukocytes in every field with a positive albumin finding by chemical test, in moderate amount, we are justified in assuming that the source of this expectoration is that found in a positively tuberculous individual.

3033 Colorado Avenue.

MYIASIS OF THE URINARY PASSAGES

ERNEST F. KING, M.D.
WASHINGTON, D. C.

Myiasis is the general term applied to the occurrence of dipterous larvae in man. Though the larvae of many flies have been found, those most common are from the *Fannia scalaris*, the small fly frequently seen in the spring darting actively about under chandeliers or other pendent objects. A common name for it is "latrine fly," from its favorite resort.

This fly lays its eggs in dark, moist places, and the larvae may appear in from one to eighteen hours, depending on the warmth of the place of deposit. The larvae are full grown within from six to twelve days, but under favorable conditions, three or four weeks may elapse before they enter the pupal stage.

The literature on the subject is limited. Osler's "Practice" devotes a page to the general subject of myiasis, but does not mention its occurrence in the urinary passages. Stiles in Osler and McCrae's "System of Modern Medicine" gives up a few lines to the general subject only. The Library of the Surgeon General's Office furnishes but few titles.

Captain P. S. Lelean[1] collected a series of thirty cases. The earliest one was reported by Ambroise Paré in 1582. In most of these cases the larvae were believed to be those of the *Fannia scalaris* (formerly *Homalomyia*). He relates one remarkable case of myiasis externa. In 1842 an eminent London physician wrote as follows:

> I saw hundreds of worms escaping from the skin. The carpet was covered with them where she stood dressing. They had the power of ejecting themselves to a distance of from 12 to 20 inches.

In 1899 Lieutenant-Colonel Smith saw a dipterous larva spring 3 feet. The saltatory powers of the cheese skipper will be recalled.

Cipriani[2] reports the case of a woman vagrant, badly constipated, who passed dipterous larvae in quantities from the vagina. A rectovaginal fistula existed. Cipriani believed that the eggs had been deposited on food and hatched in the lower bowel. The hard fecal masses in the rectum had aided the larvae in producing an ulcer which had perforated the rectovaginal septum, allowing the passage of the larvae into the vagina.

René Chevrel[3] makes a careful analysis of all reported cases of myiasis of the urinary passages, and adds a case of his own. He concludes that only twenty such cases have been reported, six of which he regards as authentic, ten probable and four doubtful. His own case makes seven which are authentic.

He is of the opinion that while dipterous ova may be carried into the urinary passages by sounds or catheters, or in water used for irrigating, they generally are deposited about the meatus urinarius where are found the conditions favoring their growth, namely, darkness, moisture, warmth, oxygen and food, which last is furnished by a gonorrheal or other albuminoid discharge. The eggs hatch promptly and the young larvae pass into the urethra and on into the bladder in search of food. They require but little oxygen, and in the experiments carried out by Chevrel were kept under water for hours, becoming active when taken out. There is always some air in the urethra and probably in the bladder.

The contamination is favored by sleeping without cover in hot weather, flies having free access to the genitals and anal region. Women, wearing longer gowns than men, are less affected. On the other hand, women and children without proper underclothing are more liable to infection.

Chevrel's case was that of a paralytic of 55, wife of a farmer, who was left alone all day on a chair which had been converted into a commode by removing the seat and winding the framework with rags, the receptacle for the dejecta being placed on the floor and the flies being free to swarm at will about the buttocks. She passed larvae with the urine, daily, from May 19 into July.

REPORT OF AUTHOR'S CASE

Oct. 29, 1914, H. P., man, aged 32, living on a small farm in Virginia, who had been attending my service at Emergency Hospital, brought to my office an object that he had passed with the urine, which was later identified as a larva of *Fannia scalaris*. He had voided similar objects with the urine October 19 and 28, but had not brought them to me thinking that I would laugh at him.

This man had a chronic posterior urethritis and for some months had been in the habit of urinating in a glass when at home. This glass he kept in the shed at the rear of his house, turned upside down on a shelf, and it was always rinsed after using. He had been using a small syringe of hard rubber for urethral injections and had kept this wrapped in paper and in a closed drawer, so that, apparently, the larvae could not have been in the glass, nor the eggs or larvae in the syringe.

About 8 o'clock in the morning, while digging potatoes in his garden, he was seized with an intense desire to urinate, hurried to the shed, felt something pass with the urine and found the larva in the glass. He saw no motion. I received it two hours later and it was in a perfectly fresh condition.

---

[1] Lelean, P. S.: Brit. Med. Jour., 1914, i, 245.

[2] Cipriani: Il Morgagni, 1902, xliv, 384.

[3] Chevrel, René: Arch. de parasitol., 1909, No. 3.

He has seen no larvae since nor was he able to find any in the feces after diligent search.

Contamination probably took place while seated long at stool, the flies being attracted by the presence of a slight urethral discharge. That larvae were voided ten days apart would indicate that they were from different infections. The larvae had evidently penetrated the prostatic urethra, judging by the patient's sensations, though the cystoscopic findings were negative.

I believe that the patient's word may be relied on and that this may be considered the eighth authentic case of myiasis of the urinary passages.

I am indebted to Dr. L. O. Howard, entomologist of the U. S. Department of Agriculture, for the identification of the specimen and for the copy of Chevrel's article.

223 Bond Building.

ADRENAL PRECOCITY

PRECOCIOUS DEVELOPMENT OF THE EXTERNAL GENITALS DUE TO HYPERNEPHROMA OF THE ADRENAL CORTEX

J. F. BALDWIN, M.D.
Fellow of the American College of Surgeons; Surgeon to Grant Hospital; Professor of Clinical Surgery, Ohio State University College of Medicine
COLUMBUS, OHIO

The case to be reported presents one of those rare conditions of childhood in which with the precocious appearance of hair on the face and pubes, and the equally precocious development of external genitals, there appears an abdominal tumor due to the growth of a hypernephroma of one adrenal body.

In an exhaustive article on this subject, with the report of one case, Jump, Beates and Babcock[1] have collected from the literature records of seventeen cases, their own case making the eighteenth. In all the cases the conditions present were verified by a more or less complete necropsy. Other cases they find reported, but without necropsy, so that the diagnosis is in doubt. In one case necropsy showed both adrenals apparently normal, but the necropsy was brief, and the examination evidently superficial. Of the eighteen cases reported, fourteen were girls and four boys. In all there was an overgrowth of hair on the pubes, in fourteen an overgrowth on the face and in five in the axilla. There was overgrowth of the body, due to fat or muscular development, in all; facial acne with rough skin in some; precocious menstruation and development of the breasts in only one. Pigmentation of the skin was present in many, but in none anything like Addison's disease. Some showed mental precocity, but the majority were dull. There was a tendency in all to the development of the male characteristics at the expense of the female in the girls, and an intensification of the male characteristics in the boys. In all of the cases the tumor was found to involve the adrenal cortex, and in no case was a tumor of the medulla alone found associated with this precocious development.

As showing the peculiar change in sexual development, one case is referred to of a girl of 16 whose menstruation began when she was 15 years old and ceased after one year. At this time she had developed a mustache and beard, and hair on her thorax. She became fat and her voice became masculine.

Of the eighteen cases reported, all patients died before they were 16 years old. Some were operated on and died shortly after. In others the growth was inoperable when the patient came under observation. Because of the hopeless character of the disease without intervention, the authors properly advise exploratory operation in the early stages of the development of the disease, hoping that the removal of the adrenal at an early stage might result in a cure.

REPORT OF CASE

T. R. F., boy, aged 5 years and 10 months, was referred to me July 6, 1914, by Dr. E. A. Moore, the family physician. In his letter arranging for the consultation the doctor referred to the precocious sexual development and to the presence of an abdominal tumor, the removal of which was desired. In reply to the letter I suggested that the case belonged to the rare class described in the journal referred to, and that it would probably be found inoperable. A few days later the patient came in, accompanied by his father and an uncle, Dr. N. F. Mason of Columbus. He was rather underdeveloped when born. The father thought the sexual development commenced when he was about 18 months old. He commenced to talk and walk at 9 months, and at 10 months he could talk well and "run like a partridge." After that his mental development ceased to keep pace with his physical. When he was 3 years old there was hair on the pubes and face, and he had a voice like a man, according to Dr. Mason. He was active and vigorous, and was quite useful in running errands. Probably in December, 1913, it was noticed that his abdomen was getting larger, and this enlargement continued and became quite rapid. The surface of the body became roughened, and covered more or less with sores, particularly on the chest and back, and acne developed on the face. The patient in height and weight was about normal for his years. The facial expression, however, seemed to be that of a man of 35 or 40. He had been shaving for some time. The face was badly marked with acne. There were great crusts over the upper chest and back. The chest looked very much as though it had been burned by Roentgen rays. The genital organs were apparently those of an adult, except that the testicles were small and not completely descended.

There was a large tumor in the abdomen, this being most pronounced on the left side. It was extensively adherent, and somewhat nodular. There seemed to be a second mass over toward the right, but no connection between the two could be determined. The legs were decidedly bowed, but this the father attributed to his walking so early. The child could utter some words, the voice being that of an adult, but he was mentally a mere child.

As the tumor was large and extensively adherent, and the child's general condition poor, it was evident that no operation should be considered and the child was sent home. While he was under my observation the urine was obtained, which was normal, though containing a faint trace of albumin. Blood-examination revealed; hemoglobin, 85 per cent.; red cells, 4,480,000; leukocytes, 14,000; polynuclears, 81 per cent.; small lymphocytes, 13.6 per cent.; large lymphocytes, 5.4 per cent.

The child's general condition remained about the same after his return home, but with gradual failure, and he died the morning of August 29. The necropsy was made by Drs. E. R. Shilling, pathologist to Grant Hospital, and H. M. Brundage, pathologist to Mt. Carmel Hospital, who reported as follows:

"Height 42 inches; chest measurement 24 inches, waist measurement 32 inches. Facial expression of a man of 40. Penis 4 inches long, with marked development of pubic hair. Testicles in the canal. Feet and legs enlarged. Linea albicantia distributed over the abdomen and around the ankles. The brain was removed, and appeared normal in every way. Pituitary body appeared normal, and was removed for sections. Thyroid and parathyroids small but otherwise normal; were saved for sections. In the abdomen was a large tumor, lying between the layers of the mesentery of the descending colon. On removal could peel the kidney out of its capsule and easily traced its vessels and the ureter along the capsule of the tumor. The kidney was evidently normal and functionating. The tumor weighed about 15 pounds, and measured 12½ by 9 inches with numerous small nodules protruding. On section the mass was very soft, well marked off into medulla and cortex, its origin evidently the left suprarenal gland. Right kidney normal, but its suprarenal gland was about the size of a walnut, red and friable. The liver was full of metastatic nodules. Other organs of the abdomen negative. The lungs contained numerous metastatic nodules. Other organs of the chest normal. Pieces of the tumor were removed for section."

---

[1] Jump, H. D.; Beates, Henry, Jr., and Babcock, W. W.: Precocious Development of the External Genitals Due to Hypernephroma of the Adrenal Cortex, Am. Jour. Med. Sc., 1914, cxlvii, 568.

Microscopic examination of the tissues by Drs. Coons, Shilling and Brundage showed the pituitary body and the pineal gland to be normal; also the thyroids and parathyroids. The kidney showed a chronic diffuse parenchymatous nephritis. The testicles were normal for a boy of his age. The large abdominal tumor was typical of rapidly growing hypernephroma, involving the adrenal cortex. The right adrenal showed a beginning hypernephroma similar to the left.

A SIMPLIFIED METHOD FOR THE INTRAMENINGEAL INJECTION OF NEOSALVARSAN IN SYPHILIS OF THE NERVOUS SYSTEM *

LOUIS M. WARFIELD, A.B., M.D.
MILWAUKEE, WIS.

Since Swift and Ellis[1] published the technic and the results of their method of introducing salvarsanized serum into the subdural lumbar spaces, there have been a number of reports from those using the original method and several modifications of the method, notably by McCaskey,[2] Fordyce[3] and Pilsbury.[4] There is no question that the technic is elaborate, not altogether free from danger (Lorenz[5]) and it gives no idea of the amount of salvarsan used. It is not known also what the combination of salvarsan and serum is which is injected.

Swift and Ellis found neosalvarsan solutions less irritating to monkeys when given subdurally. We found the same relation between the two drugs in dogs and in rabbits. Salvarsan, first used by us in very dilute solution, has been put aside for neosalvarsan, which seems far preferable for intrameningeal use.

Ravaut[6] gives neosalvarsan in hypertonic solution. He uses 0.3 gm. in 5 c.c. distilled water, which gives a solution such that 1 drop equals 1 minim. Of this he gives from 3 to 12 drops by means of a special syringe, diluting it with spinal fluid. This seems an unnecessary waste of a rather expensive drug, especially if only one injection is to be given. Wile,[7] in this country, has used Ravaut's technic with some success.

After a year's experience with the method about to be described, I feel justified in presenting it and recommending it. Ravaut's work was unknown to me until several months after we had used the method at the Milwaukee County Hospital and in private cases. In my hands the method has been most satisfactory, and, I believe, fulfils the requirements for simplicity and rationality of procedure. The patients, especially tabetics, often have an exacerbation of pains in the legs or of girdle pains, but these pass off over night, only rarely necessitating a hypodermic of morphin.

There can be no doubt that in order to render the maximum service to patients, treatment must not be so complicated that only a few exceptionally trained men in conjunction with well-equipped laboratories can administer it. It must ever be our aim to simplify therapeutic procedures so that many will be able to benefit thereby. The point in the treatment of cerebrospinal syphilis is to get the spirillicide drug to the infecting agent in the spinal cord and brain with the least harm to the patient but the greatest harm to the parasite.

It has always been our custom to inject neosalvarsan intravenously and intrameningeally at the same sitting. We have never given the latter alone except in one case of negatively reacting tabes in order to control the lightning pains.

TECHNIC

We require freshly sterilized 0.5 per cent. saline solution made from freshly distilled water; a sterile 25-c.c. glass-stoppered cylinder; a sterile 1-c.c. pipet and 10-c.c. pipet graduated in 0.1 c.c.; two sterile medicine glasses; a 20-c.c. sterile Luer syringe, with needle; a 10-c.c. Record syringe, sterile; a spinal puncture needle with stylet into which the end of the Record syringe fits, sterile; some form of arm constrictor, sterile sponges, towels, alcohol and iodin.

Nine-tenths gm. neosalvarsan is dissolved in 18 c.c. of the saline solution. One c.c. of this equals 0.05 gm. One c.c. of this to 9 c.c. saline is Solution 2. Four c.c. of Solution 2 to 6 c.c. saline is Solution 3. One c.c. of this contains 2 mg. of neosalvarsan. With all the materials and glassware ready these solutions may be prepared at the bedside.

With the 20-c.c. syringe the 17 c.c. neosalvarsan is given intravenously. The patient is then turned over on his side. Before the spinal needle is introduced 1, 2 or 3 c.c. of Solution 3 is drawn into the Record syringe. I usually do not give more than 2 c.c. or 4 mg. The spinal puncture is then made and as soon as the fluid is flowing freely the syringe containing the neosalvarsan is fitted to the head of the needle and gentle suction made until the syringe is full of spinal fluid. After holding a brief time the whole is *very* slowly and at the least amount of pressure injected into the meninges through the needle *in situ*.

(Note: Should more than 4 mg. be used the dilution can be made stronger as required, although 6 mg. has been my maximum dose and from 2 to 4 mg. the usual dose.)

ADVANTAGES

We claim for this method: (1) maximum of safety; there is no increase in pressure, no introduction of a large amount of foreign material, no shock from differences in temperature of the spinal fluid and the solution injected; (2) absolute control of dosage.

Several times a blood-vessel has been struck and the spinal fluid has been quite red in color. The injection of this blood-stained fluid has not resulted in one particle of harm as far as we could determine.

Injections are given one to two weeks apart, and the results and number of injections are controlled by serobiologic reactions of blood and spinal fluid.

141 Wisconsin Street.

---

* From the Medical Clinic of the Milwaukee County Hospital.

1. Swift, H. M., and Ellis, A. W. M.: New York Med. Jour., 1912, xcvi, 53; The Treatment of Syphilitic Affections of the Central Nervous System with Especial Reference to the Use of Intraspinous Injections, Arch. Int. Med., September, 1913, p. 331.

2. McCaskey, G. W.: The Autoserosalvarsan Treatment of Syphilis of the Central Nervous System, The Journal A. M. A., May 30, 1914, p. 1709.

3. Fordyce, J.: The Treatment of Syphilis of the Nervous System, The Journal A. M. A., Aug. 15, 1914, p. 552.

4. Pilsbury, L. B.: Paresis Patients Treated with Intraspinal Injections of Salvarsanized Serum, The Journal A. M. A., Oct. 10, 1914, p. 1274.

5. Lorenz, W. F.: Wisconsin Med. Jour., 1913, xii, 171.

6. Ravaut: Quoted by Wile (Footnote 7).

7. Wile, Udo J.: The Technic of the Intradural Injections of Neosalvarsan in Syphilis of the Nervous System, The Journal A. M. A., April 11, 1914, p. 1165.

A CASE OF ULCERATIVE PNEUMOCOCCUS ENTERITIS WITH PERITONITIS FOLLOWING LOBAR PNEUMONIA

Clara M. Davis, A.B., M.D., Lansing, Mich.

The following case is reported as being of interest because of the comparative rarity of the condition, the interesting operative findings and the recovery of the patient.

History.—S. P. T., a mulatto laborer of good habits, aged 56, was seen first, March 3, 1910. He had had typhoid fever in his teens; an operation for hemorrhoids at 30, and for ten or twelve years preceding the present illness, more or less "stomach trouble" aggravated by chewing tobacco, and characterized by gas, soreness in the pit of the stomach and attacks of pain under the right lower ribs extending through, beneath the right shoulder blade and to the right shoulder. These attacks were usually accompanied by huge hives. The patient had been feeling poorly all the fall and coughed a little. Family history as far as patient knew was negative as to tuberculosis.

Present Illness.—February 10, following exposure and chilling, patient had typical attack of lobar pneumonia involving the right lung; crisis occurred on the ninth day; since then he has coughed moderately and raised a fair amount of purulent sputum but has not gained any strength and has constant distress in his stomach with tenderness over the upper abdomen; bowels have not moved for two days.

Physical Examination.—Temperature 97.6, pulse 72, slightly irregular and rather poor quality; respirations 19. Patient moderately emaciated, sweating profusely, conjunctivae subicteric; tongue heavy yellowish coat, breath foul; chest shows slight dulness, increased vocal fremitus and bronchovesicular breathing over lower lobe of right lung; abdomen slightly below level of ribs; extreme tenderness in upper abdomen, especially in epigastrium to the right of midline, right hypochondrium and just above and to left of umbilicus.

Sputum examination showed only many pneumococci and pus cells, no tubercle bacilli. Leukocytes 9,800.

Urine examination was negative.

Treatment and Course.—Calomel, ¼ grain every hour for five doses, to be followed by a saline, was ordered and a liquid diet.

March 4, temperature was between 97.6 and 98.8, pulse between 78 and 85; bowels moved freely and patient vomited a large quantity of dark green bile. There was less pain and tenderness but increased weakness.

March 5, temperature 98.4; pulse 76, tongue clean, breath no longer foul; patient felt better.

March 6, temperature 99.3, pulse 88, respirations 20. Patient complained of great pain and tenderness in gall-bladder region, slight hiccup and mild distress in urinating. Three large herpes appeared on the lips. Abdominal examination showed tenderness as in first examination; urine showed neither albumin nor casts. Leukocytes 10,600. One brown liquid stool was obtained by enema.

March 7 and 8 there was no material change except for cessation of hiccup and less pain and tenderness. Herpes appeared on lips, border of tongue and pharynx. Bowels moved by enema; small brown, soft stool, some mucus.

March 9, patient much worse; vomited some dark blood, passed several black tarry stools; microscopic examination of stool showed an enormous number of pneumococci. Examination of patient showed temperature 98, pulse 104, respirations 22, peritonitic facies, scaphoid abdomen, with rigidity, especially in upper abdomen above umbilicus. Leukocytes 18,000, 75 per cent. of polymorphonuclears. Patient was removed to hospital and laparotomy under light ether anesthesia was done by Dr. L. W. Toles late in the afternoon, at which time patient's condition was poor. Pulse 120, temperature 98.4 and abdomen slightly distended.

Operative Findings.—The abdomen was opened by an incision in the gall-bladder region parallel and to the right of the median line, and the peritoneal cavity was found to contain a fairly large amount of thin pink-tinged fluid with a few fibrin flakes. Stomach was normal; gall-bladder small, dark and shriveled; liver very small and apparently atrophic. The small intestine throughout its entire length was thickened, intensely congested, almost hemorrhagic and the seat of numerous small acute ulcers showing as more deeply congested spots softer than the surrounding areas. These ulcers were most numerous in the upper part of the jejunum and decreased in number in the ileum, especially the lower portion. In a somewhat hasty examination no perforation was found and no ulcers were seen in the large intestine. Appendectomy was done, the abdomen closed and the patient left the table in very poor condition. Pulse 120 and of poor quality. Strychnin, 1/60 grain, was administered hypodermically, and normal saline was given on the table.

Postoperative History.—Eight ounces more of saline were given by rectum and strychnin, 1/60 grain hypodermically, as soon as patient returned from operating room. For the first four days patient's condition was very poor, hiccup being severe and almost continuous; from three to four black tarry stools daily; pulse from 100 to 116, temperature from 97 to 100; more herpes appeared in the mouth and in the alae nasi and lobes of the ears. Those on the tongue were particularly distressing.

March 13, six days after operation, right ear ached slightly for an hour, at the end of which time, discharge appeared. Cultures from this gave pure growth of pneumococci. Hiccup stopped on the fifth day after operation, melena after the eighth, and patient was discharged March 26, the seventeenth day, but was in bed at home for ten days longer, during which he complained of pain and tenderness in the wrists and ankles. The herpetic vesicles along the tongue developed into shallow ulcers, which were extremely painful and did not clear up for several weeks longer.

Three months later patient had regained his normal weight, 150 pounds, and was able to go to work.

The condition was not correctly diagnosed prior to operation. The history suggestive of gall-stones and chronic cholecystitis made an acute cholecystitis of pneumococcus origin seem probable, but with the appearance of melena, duodenal ulcer had to be considered. The peritonitis could have been a consequence of either, and therefore gave no aid to diagnosis. Not enough importance, it is probable, was attached to the rather profuse appearance of fresh herpes during the early days of the illness. Also since the gastrointestinal complications and sequelae of lobar pneumonia have received rather scant attention in description of that disease, the possibility of pneumococcus enteritis did not occur to the observers.

AN UNUSUAL CASE OF SCREW-WORMS IN THE NOSE AND NASAL ACCESSORY SINUSES

George U. Huber, M.D., and Frank L. Flack, M.D., Coffeyville, Kan.

J. M., farmer, aged 66, was referred to us Oct. 5, 1914, for hemorrhage of the nose. This patient had had trouble with his nose for several years. One year ago last August his nose began to discharge and became very sore. About this time a traveling medicine man came through his part of the country selling an inhalation powder for treatment of diseases of the nose. He purchased a large amount of this medicine for use and to be doubly certain of a cure traveled with the medicine man for several months and took treatment under his directions.

At varying intervals large masses of necrotic material were discharged from his nose. Following this he was relieved. Up until two weeks ago his condition had remained about the same. At this time a fly went in one nostril and came out of the other. Following this trouble he became rapidly worse. October 2, he felt something moving in his nose and called a regular doctor who saw him several times and gave him treatment. This was of but little benefit. Finally the doctor injected chloroform and removed seventy-two Texas screw-worms. The patient's condition remained serious and he was brought to the hospital for treatment. At this time a Wassermann test was made which was strongly positive.

Under general anesthesia the following conditions were discovered: The walls of the right antrum of Highmore were completely necrosed and the antrum filled with worms. The middle turbinate on the right side was markedly necrosed. The right frontal sinus was open, and the right ethmoidal cells exposed. The walls of the antrum on the left side were partly necrosed. The turbinate on this side was partly necrosed and the ethmoidal cells exposed. The right eye was swollen shut and a worm was found in the lacrimal sac. These worms were the ordinary Texas screw-worms measuring about 1 inch in length and about ⅛ inch in diameter. Forty were removed at operation. On the right antrum a Cadwell-Luc operation was performed. On the left antrum a Denker operation was done. The Ballenger turbino-ethmoidectomy was performed on both sides. The right frontal sinus was curetted. The right canaliculus was split and the lacrimal duct probed. All sinuses were packed with iodoform gauze, after a thorough irrigation with a 10 per cent. solution of chloroform.

The after-treatment consisted in blowing iodoform into the nose and sinuses for one week and a vigorous course of antisyphilitic treatment. After a week the man was in a much improved condition and left the hospital.

This patient had a long-standing specific necrosis of the bones of the nose and accessory sinuses which undoubtedly attracted the fly carrying the larvae and furnished favorable conditions for their growth and reproduction.

Oct. 27, 1914, the patient was cured of the worms, and the nose looks perfectly healthy except for the damage done by the specific necrosis previously.

OIDIOMYCOSIS IN PORTO RICO

E. R. HILDRETH, M.D., AND A. C. SUTTON, SAN JUAN, P. R.

While about 150 cases of oidiomycosis have been recorded, we think this is the first case noted in Porto Rico. The diagnosis was made from an examination of fresh specimens of pus in 10 per cent. sodium hydroxid solution, and of stained smears. The pus, which was rather whitish, contained numerous doubly-contoured, oval and spherical bodies, frequently budding, and in the sodium hydroxid solution highly refractive. They varied from 10 to 15 microns in diameter. Besides there were many smaller spherical bodies about 3 microns in diameter.

History.—Mr. D. A., aged 40, a native of San Juan, Porto Rico, who had never been off the island, was first seen in our clinic at the Presbyterian Hospital, San Juan, July 22, 1914. He complained of painful lumps on his legs, and also cough and pain in his chest. Statements regarding any family history were unreliable.

Present Illness.—The first nodule appeared about the middle of May, on the outer part of the left leg, about 4 inches below the knee. About one month later two more appeared, one on the front of each thigh about 3 inches above the knee. Two weeks later two more came out; one on each leg 3 inches above the last ones. They began as small, hard lumps under the skin, and became steadily larger, until about an inch in diameter, when they softened in the center. They were always extremely painful from the start. The patient had had attacks of pain in his chest every two or three months for the past two or three years, accompanied by a cough with a slight amount of tenacious phlegm.

Physical Examination.—The oldest nodule was an inch and a half in diameter. The center showed distinct fluctuation. The outer edge was very hard and the surrounding tissues were somewhat infiltrated. The skin over all of them was a deep purple. The lesion just above the largest one had likewise begun to soften. The others were simply hard, painful, subcutaneous nodules. The inguinal glands on both sides were distinctly palpable. There were no marked physical signs in the chest. There was, however, slight dulness at the left base, accompanied by a louder respiration and more prolonged and higher pitched expiration than at the right base. The sputum was never examined because the expectoration ceased before the second visit.

Treatment.—The nodules which showed fluctuation were incised and drained with iodoform gauze. By the next visit they had become deep, punched-out ulcers, which were then kept on a wet mercuric chlorid dressing. Ichthyol ointment was used to rub on the other nodules. The patient was given potassium iodid internally, 10 drops three times a day, increasing 1 drop each dose to 20 drops of a solution of 50 gm. of potassium iodid in 50 c.c. of water.

The patient showed steady improvement. The symptoms in the chest disappeared. The nodules on the legs became smaller and smaller. All the pain disappeared. When last seen, a month and a half after the first visit, he seemed fully recovered.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THEIR ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS ARE ASKED FOR TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK "NEW AND NONOFFICIAL REMEDIES."

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT, SO FAR AS KNOWN, IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

RADIUM BROMIDE.—$RaBr_2$.—The anhydrous radium salt of hydrobromic acid.—The market supply is a mixture of radium bromide and barium bromide and is sold on the basis of its radium content.

Actions and Uses.— See Radium.

Dosage.—See Radium.

Radium Bromide, Radium Co. of America.—Radium bromide is supplied in the form of a mixture of radium bromide and barium bromide. It is sold on the basis of its radium content. All deliveries are made subject to the test of the U. S. Bureau of Standards or any reputable university or radium expert whom the buyer may designate at the time of purchase.

Manufactured by the Radium Co. of America, Sellersville, Pa.

Radium Bromide, Standard Chemical Co.—It is supplied in the form of a mixture of radium bromide and barium bromide for use in applicators, inhalatoriums, and injection solutions and is sold on the basis of its radium content.

Manufactured by the Standard Chemical Co., Pittsburgh, Pa. (The Radium Chemical Co., Pittsburgh, Pa.).

Pure anhydrous radium bromide, containing 58.6 per cent. of radium (Ra), is a white or slightly brownish crystalline substance, soluble in water.

The presence of radium can qualitatively be demonstrated by electroscopic or by photographic methods.

The quantitative determination of radium is carried out according to the method of Rutherford and Boltwood (Rutherford's "Radio-Active Substances and their Radiations").

RADIUM CARBONATE. — $RaCO_3$. — The anhydrous radium salt of carbonic acid.— The market supply is usually a mixture of radium carbonate and barium carbonate and is sold on the basis of its radium content.

Actions and Uses.— See Radium.

Dosage.—See Radium.

Non-Proprietary Preparation:

Radium Carbonate, Standard Chemical Co.—It is supplied in the form of a mixture of radium carbonate and barium carbonate for use in applicators. It is sold on the basis of its radium content.

Manufactured by the Standard Chemical Co., Pittsburgh, Pa. (Radium Chemical Co., Pittsburgh, Pa.).

Pure radium carbonate, containing 79.0 per cent. of radium (Ra), is a white or slightly brownish salt insoluble in water, decomposed by acids.

No gases are given off spontaneously from anhydrous radium carbonate by reason of the decomposing action of the radiations, as is the case with the chloride and bromide.

The presence of radium can be demonstrated qualitatively by electroscopic or by photographic methods.

The quantitative determination of radium is carried out according to the method of Rutherford and Boltwood (Rutherford's "Radio-Active Substances and their Radiations").

NON-PROPRIETARY BRANDS OF ACCEPTED ARTICLES

Arbutin, Merck.—Merck and Co., New York.

Radium Chloride, Radium Co. of America.—Radium chloride is supplied in the form of a mixture of radium chloride and barium chloride. It is sold on the basis of its radium content. All deliveries are made subject to the test of the U. S. Bureau of Standards or any reputable university or radium expert whom the buyer may designate at the time of purchase.

Manufactured by the Radium Co. of America, Sellersville, Pa.

Radium Sulphate, Radium Co. of America.—Radium sulphate is supplied in the form of a mixture of radium sulphate and barium sulphate. It is sold on the basis of its radium content. All deliveries are made subject to the test of the U. S. Bureau of Standards or any reputable university or radium expert whom the buyer may designate at the time of purchase.

Manufactured by the Radium Co. of America, Sellersville, Pa.

The following preparation has been accepted for inclusion with the appendix to New and Nonofficial Remedies:

Antiseptic Supply Co., New York.

Cupric Applicators (Copper Sulphate 20-25 per cent.).—Wooden sticks 6½ inches long, tipped with a mixture of copper sulphate, alum and potassium nitrate, containing from 20 to 25 per cent. of copper sulphate, packed in gelatin tubes. Each stick is to be used but once.

Therapeutics

PREVENTION IS GREATER THAN CURE

(Continued from page 2229)

XIII

CARE OF THE TEETH AND MOUTH

The importance of oral cleanliness is becoming more widely recognized. The discovery that individuals, apparently well, may be carriers of pathogenic germs, especially of the bacillus of diphtheria, of the pneumococcus and of the bacillus of influenza, makes persons so infected a menace to their associates. How frequently the pneumococcus causes pneumonia in one who carries this germ accidentally is of course not known. Whether an individual who develops pneumonia always receives an acute infection with this germ, or whether, becoming debilitated by an influenza or a cold caused by some other germs, he has his resisting power so reduced that the pneumococci present in his mouth and throat cause active infection, cannot readily be determined. Streptococci and staphylococci are of frequent occurrence in the mouth, especially when there are decayed teeth, or diseased gums, tonsils, noses or any of the sinuses surrounding these regions. Whether these germs so present in a person's mouth frequently or infrequently infect others need not be considered. It is certain that the carriers of the germs are a constant source of danger to themselves, not only on account of the local disturbance, which may become more or less permanent with more or less disorganization or disintegration of solid tissues, but also from the danger of septic and pyemic infection. From such local infections joint inflammations are frequently caused, whether or not this is the case with true rheumatism, endocardial inflammations, and possibly such serious blood disturbances as pernicious anemia or leukemia. More or less serious glandular disturbances may occur from these local putridities or suppurations and the lungs are in constant danger from infection from these organisms. Some of these bacteria may also cause conditions that allow an infection by tubercle bacilli. Chronic nephritis must also be listed as an occasional consequence of a local infection in the mouth, nose or throat.

More or less constantly these pathogenic germs must be swallowed with food, drink and saliva. Probably most of them are killed by the hydrochloric acid of the gastric juice, provided the stomach is normal. If the stomach secretions are imperfect or if there is a chronic congestion of the mucous membrane of the stomach, many of these germs doubtless pass alive into the intestine and may there be a cause of a chronic enteritis or an infection of the gall-bladder, or they may possibly disturb the pancreas, and may be the cause of an ultimate incurable organic disease or incurable blood disturbance.

The corollary of the foregoing, and the possible and more or less frequent results of mouth infection which have not been overestimated, is cleanliness of the mouth, nose and throat. The teeth and mouth should at least be thoroughly cleansed on rising in the morning and on going to bed at night. A thorough use of the tooth-brush with such tooth-powders or tooth-pastes as seem advisable, depending on the age of the person and the condition of the gums and the character of the deposits that occur on the teeth, should be made daily. Some teeth cleanse readily and do not require a very stiff brush or very harsh treatment. Others need a stiffer brush and a powder, not too soapy, for complete removal of all deposits. If the gums bleed readily, they should be hardened with simple astringent washes, either a dilute alcohol or a dilute astringent tincture such as myrrh, or a tannic acid wash. Potassium chlorate mouth-washes and gargles are very soothing to irritated mucous membranes, but ordinarily any simple alkaline wash or mildly antiseptic solution as borax or boric acid solutions will be found sufficient, with the proper rubbing of the gums with a not too hard tooth-brush, or rubbing the gums with the fingers, that is, massage. The powder selected for cleansing the teeth is generally alkaline, with chalk or magnesia, but it has been shown that acid cleansing preparations, especially the acid fruits, are more efficient in causing the death of bacteria that occur in the mouth.[1] Whatever powder is chosen, it should contain no hard crystals that could possibly injure the enamel of the teeth.

A few children have never been taught to cleanse their teeth at all; many children have never been taught the proper manner of cleansing their teeth. Consequently, it should be the duty of the trained nurses of schools not only to examine the condition of the teeth and mouth of the children, but also to instruct them how to use their tooth-brushes, and what the hygiene of the mouth means. Some physicians urge that there should be daily gargling with some simple mouth-wash or physiologic saline solution, and also urge the snuffing into the nostrils and then expelling of such solutions. Theoretically, cleansing of the nostrils from the dust and bacteria inhaled should be a daily duty. Washing the mouth and throat with some simple solution should also be daily done. Practically, however, it is difficult to enforce such advice. Also, as far as the nostrils are concerned, solutions and sprays may irritate the mucous membrane, or may remove Nature's protective mucus. For this reason it may not be advisable generally to recommend washing of the deeper parts of the nostrils with antiseptic or other solutions.

---

[1] Oral Cleanliness, Therapeutics, The Journal A. M. A., Nov. 8, 1913, p. 1719.

The removal of hopelessly decayed teeth and the filling of the cavities in teeth that can be preserved are essential to health. The trained nurse should discover such teeth in children and strongly advise, if not insist, that they be properly attended to. Alveolar abscesses, or other localized infection, should be treated by the physician or dentist until cured. Temporary frequent washing of all pus parts, unless the cavity is more or less closed, with hydrogen peroxid solutions, the dilution depending on the part affected, is efficient until the diseased part can be more thoroughly treated.

Pyorrhea alveolaris, very frequent in adults, very rare in children (unless the child is generally debilitated, or in children who have rickets) is a germ disease that is cured only by the most persistent and continuous treatment. Cleanliness and antiseptic washings are the means of prevention, but these rarely will cause a cure. Iodin treatment by the dentist will sometimes cure up pockets of infection. In inveterate cases vaccines, especially autogenous vaccines, have many times proved efficient. Sinus diseases are well treated only by nose and throat specialists.

Let it be urged that it is a mistake to retain too long a tooth that is causing disturbance. Many a serious condition and a great deal of jaw, and even antrum trouble has been caused by trying to preserve a tooth that is diseased at its root, or has a pocket of infection running down from the gum toward the root. A tooth that is diseased and cannot be well treated from the surface and which tends to cause serious disturbance of the fifth nerve, and especially if the pain comes in spasms, cannot be too soon removed. Dentists are often too conservative. Roentgenograms of the conditions in a jaw will often show a diseased tooth, or ill-placed teeth, which may be the cause of pain.

A few more suggestions might not be out of place.

First, the tooth-brush should not only be a good one, and not have loose bristles to cause injury or to be retained in the mouth or throat, but the brush should be deposited in an antiseptic solution. Of what value is it to cleanse the germs from the mouth and teeth and then allow them to grow in the tooth-brush to become a source of infection for following days? After using, the tooth-brush should be cleansed and placed in a test-tube or a bottle holder with alcohol or in a weak formaldehyd solution, as 1 part of liquor formaldehydi to 25 parts of water.

Second, the constant and frequent use of hydrogen peroxid solutions, which has become more or less of a fad with many persons, is a mistake. It is not good for the teeth, and not good for the gums, although it is used and should be used in septic or infected conditions, but not then for too long.

Third, the teeth and mouth should receive a great deal of care and attention during all illness, whatever that illness may be.

Fourth, before all operations which are not of the emergency type, the teeth and gums should be put into good condition by the patient's dentist. Before operation in all cases the mouth, teeth and gums should be thoroughly cleansed and cleaned with hydrogen peroxid or other antiseptic solution.

ADENOIDS; HYPERTROPHIED TONSILS; OTORRHEA; CERVICAL ADENITIS

While any one or any two of these conditions may occur without the others, they are all more or less closely associated, and the schoolteacher and the trained nurse should take note if any one of them is present in a child, and the child should then be sent to the medical inspector or medical examiner. The importance of treating hypertrophied and diseased tonsils has already been discussed. The association of mouth and throat diseases with cervical adenitis is well understood. Also the necessity for removing obstructive adenoids which hinder proper breathing and prevent the removal of dust particles and germs and the warming of the air, requires no discussion.

Adenoids not only cause and allow nasal catarrh, recurrent tonsillitis, chronic pharyngitis, and even bronchitis with perhaps, later, the development of cervical adenitis, but they may also be a cause of obstruction of the eustachian tubes and disturbance and infection of the ears. They may allow infection of the sinuses associated with the nostrils, and they may prevent the proper development of the bones of the face, the proper growth of the nose and cause that vacant, open-mouth expression, which is so perfectly characteristic of this simple but frequent condition. It is needless to urge that the earlier obstructive or hypertrophied adenoids are removed, the less likely are complications to occur and the more normal will be the growth of the bones of the face, nose and jaw.

The seriousness of discharging ears will be recognized when Dr. N. P. Stauffer's statements[2] are repeated, that, of 90,000 deaf persons in the United States according to the census of 1900, 51,000 were deaf from childhood, that 75 per cent. of deafness is caused by discharging ears, and that 75 per cent. of discharging ears is due to adenoids and hypertrophied tonsils.

With acute adenitis the child has a high temperature, and it is soon recognized that he is sick. It should be remembered that a child may have folliculitis in the nasopharynx which may give infection to others much the same as follicular tonsillitis. With chronic enlargement of the cervical glands the little patient's temperature and nutrition should be carefully studied. Also, any focus of infection in the throat should be noted.

The best management for the individual patient with an enlarged gland or glands is for the decision of the family physician. Not all enlarged cervical glands are tuberculous; not all enlarged glands should be removed. A suppurating gland, however, should never be neglected. Also, chronically enlarged cervical glands may become infected with tuberculosis, or may be the beginning of more serious glandular trouble, as Hodgkin's disease. In other words, enlarged glands should always be looked on with suspicion, and generally the parents should be advised that the child should not remain in school, but may perhaps attend an open-air or open-window school. The treatment should be decided by the family physician. It should be noted, however, that iodid surely, and arsenic perhaps, will stimulate a tuberculous process to more widespread activity. Whatever is done, it should be emphasized that a child with enlarged glands of the neck is under suspicion of ill health as long as such glands are in evidence.

(To be continued)

---

[2] Stauffer, N. P.: New York Med. Jour., Oct. 10, 1914, p. 705.

THE JOURNAL OF THE
AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street . . . Chicago, Ill.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

Contributors, subscribers and readers will find important informin on the second advertising page following the reading-matter

SATURDAY, DECEMBER 26, 1914

On account of the large amount of space occupied by the Index in this issue of The Journal, certain departments have been omitted entirely and others abbreviated.

THE INDEX

This issue of The Journal contains the index to the current, or sixty-third, volume of The Journal, including the current medical literature which has been listed from week to week. The Index contains references to original articles in over two hundred of the leading medical journals of the world, including those of the principal foreign countries.

The Index consists of two parts — an author and a subject index. Under "Authors" appear the names of all who have contributed articles to The Journal or to any other journal listed in the current literature department, as well as the names of those whose papers are abstracted in the medical society reports in The Journal. Under "Subjects" will be found complete references to all reading-matter in The Journal and references to the original articles in all domestic and foreign journals listed, arranged under the subject of the article with double entry when necessary and with numerous cross-references to facilitate the use of the Index. The figures in bold-faced type refer to reading-matter in The Journal.

The "Guide to Current Medical Literature," under which title the Index appears in pamphlet form,[1] contains, in addition, the titles of the articles listed, arranged chronologically and by journals, as in the Current Medical Literature Department. It is issued in separate form for convenience—to make it unnecessary to handle the bound volume of The Journal.

Just preceding the Index a list of the journals indexed during the past six months is given. Any foreign journal, except those starred, will be lent by The Journal to subscribers and members in the United States with the understanding that it will not be held over three days. Requests for journals should be addressed to the Library of the American Medical Association and six cents in stamps should be enclosed. This covers the average expense of mailing a journal. The addresses of the domestic journals are given, and these can be obtained direct from the publishers. No domestic journal will be lent, as these can be obtained direct from the publishers as easily and as quickly as from us.

PITUITARY EXTRACT AND MILK SECRETION

It cannot be denied that the secretion of milk is subject to nervous influences. Nevertheless physiologists have not yet succeeded either in producing secretion by the method suggested by experience with other secretory structures, namely, by stimulation of nerves going to the mammary glands, or in stopping a secretion in progress by section of such nerves. It is a well-established belief that the secretion and composition of the milk may be affected reflexly through the nervous system, as for example under the influence of the emotions. The action may even be reciprocal, as in the case of the pelvic organs, when the act of suckling excites tonic contractions of the uterus.

Food has some influence on the make-up of the milk; yet this factor is relatively so subordinated to others that in current speech the quality of the milk is regarded as a matter of "breed versus feed." Aside from both of these agencies, the nervous and the dietary, which may act on the mammary gland, one is impelled to ask how the flow is initiated or regulated from time to time in the individual. We approach here the question of the existence of galactagogues.

In 1910 Drs. Ott and Scott[1] of the physiologic laboratory at the Medico-Chirurgical College of Philadelphia found, in the goat, that during the early nursing period an intravenous injection of an extract of the posterior part of the hypophysis rapidly and greatly increased the secretion of milk. The infusion starts the flow in about one minute; it reaches its height (under the conditions of experiment) in four minutes, after which it rapidly falls to normal. As a concrete instance of the extent of this response we may quote one trial in which the flow of milk was 5 drops during five minutes before introduction of 5 drops of a pituitary extract by vein, and 405 drops in the same time thereafter. Extracts of other glands of internal secretion—corpus luteum, pineal body and thymus—may increase the milk flow fourfold in five minutes, whereas the pituitary product is by all means the most powerful galactagogue, increasing it a hundredfold or more. The ovary minus the corpus luteum has no effect whatever.

Soon after these observations were confirmed by Schäfer and Mackenzie[2] on other species of lactating animals. They found that the extract of the anterior lobe of the pituitary was inactive. Later Mackenzie[3] observed that the galactagogue substance is present in the pituitary body not only of lactating females, but also of non-lactating females and of males.

---

[1] The Guide to Current Medical Literature may be obtained from the Association office at 50 cents a copy.

[1] Ott, I., and Scott, J. C.: The Action of Infundibulin upon the Mammary Secretion, Proc. Soc. Exper. Biol. and Med., 1910, viii, 48.

[2] Schäfer, E. A., and Mackenzie: Proc. Roy. Soc. (B), 1911, lxxxiv, 16.

It need scarcely be remarked that such observations promptly suggested the application of the findings to cows and to lactating women. In the case of cattle the total effect of administration of pituitary extract on the total daily yield of milk has been negative.[4] The reason for this is made probable by studies of Hill and Simpson[5] at Cornell University. They observed, it is true, that the intravenous injection of pituitary extract (whole gland or posterior lobe alone) leads to an immediate secretion of milk very rich in fat. The effect, however, quickly passes off. There is a corresponding diminution in the yield of milk at the next milking period, and to some extent in the percentage of fat, so that in the twenty-four hours there is practically no increase in the total quantity of milk or of fat obtained.

Schäfer, in 1912, observed slight transitory effects from introduction of pituitary extract in a human subject. The most significant observation, however, is one recently reported by Hill and Simpson[6] in a healthy young married woman nursing her second baby, in the fifth month of lactation. Intramuscular injection of a commercial preparation equivalent to 20 mg. of the dried infundibular portion of the gland was followed, in ten minutes, by a marked increase in the amount of milk secreted. After a latent period of from twenty to thirty seconds the mother could feel the milk "coming into the breasts," and a few minutes later abdominal pains were experienced, presumably due to increased intestinal peristalsis. The milk withdrawn after injection was rich in fat, the average figure for the three experiments being 5.5 per cent. as compared with 3.4 per cent. for three days when no pituitary extract was administered. In the milk yielded twenty-four hours after injection the fat content was still somewhat above the normal. Although no quantitative estimations were made, judging from the mother's experience in nursing the child, it would appear that the quantity of milk obtainable by it on the morning after the injection was diminished.

The import of these observations must not be exaggerated. They afford no evidence of any increased production of milk. But the demonstration of a chemical influence manifested by altering the rate of secretory discharge is of itself an interesting accomplishment quite aside from any further immediate application thereof.

THE SUPRARENAL BODIES AND KIDNEY FUNCTION

Although the nature of the supply of vasomotor nerves to the kidney and the conditions which bring them into activity are fairly well known, additional factors which may control the flow of urine are far from being completely elucidated. Most writers on the physiology of the kidneys deny the existence of specific secretory nerves for these organs, although Asher and Pearce have suggested that the vagus and splanchnics are direct secretory nerves to them. There is a tendency in some quarters to postulate the occurrence of specific chemical excitants or diuretics, formed in the body and acting as do the group of stimulants now classed as hormones.

Experimenters who have busied themselves with the physiology of the renal secretion have at times been brought face to face with contradictions which they could not explain on a purely vasomotor basis, that is, by corresponding alterations in the blood-supply. In the course of an investigation in this field Cow[1] was struck by the different effects produced by perfusing the kidneys directly through the renal arteries and through the aorta. After the exclusion of possible sources of difference in the condition of the experiments, the only feasible explanation appeared to be that in the perfusions through the aorta the fluid in some way passed through the suprarenal glands before reaching the kidneys. A further examination of the anatomic possibilities showed that there exists, at any rate, a possible channel through which the products of the suprarenal bodies can reach the kidneys directly and without either dilution or oxidation in the general circulation.

There is nothing essentially unique in the demonstration of a direct vascular connection between the medullary portions of the suprarenal bodies and the kidneys. It has long been known that vessels in the neighborhood of the kidneys anastomose with vessels connected with adjacent parts. Such anatomic interrelations have been described between the vessels of the kidney, suprarenal and large intestine.[2] As the result of Cow's work it now appears that under certain conditions epinephrin in appreciable amount is poured directly into the kidneys from the suprarenal bodies and consequently produces a diminution in the flow of urine. This effect is precisely what takes place on stimulation of the splanchnic nerves which, in turn, are known to be the path by which fright or excitation of afferent nerves causes a reflex exhaustion of the epinephrin content of the suprarenal bodies.

In the light of this newer knowledge it may be possible to explain the findings of Asher and Pearce[3] without introducing the hypothesis that the kidney has a direct secretory innervation. According to Cow we may assume that the stimulation of the splanchnics (as conducted by Asher and Pearce) produces an outflow of epinephrin from the suprarenal bodies and that some, at any rate, of this finds its way directly to the kidney, producing a diminution in the flow of urine. The novelty of this contribution consists in the implication that the suprarenal bodies may be regarded as direct regulators of urinary activity.

---

[3] Mackenzie: Quart. Jour. Exper. Physiol., 1911, iv, 305.

[4] Compare Gavin: Quart. Jour. Exper. Physiol., 1913, vi, 13.

[5] Hill, R. L., and Simpson, S.: The Effect of Pituitary Extract on the Secretion of Milk in the Cow, Proc. Soc. Exper. Biol. and Med., 1914, xi, 82.

[6] Hill, R. L., and Simpson, S.: The Effect of the Intramuscular Injection of Pituitary Extract on the Secretion of Milk in the Human Subject, Am. Jour. Physiol., 1914, xxxv, 361.

[1] Cow, D.: The Suprarenal Bodies and Diuresis, Jour. Physiol., 1914, xlviii, 442.

[2] Tuffier: Rev. de chir., 1890, p. 390. Quénu and Lejars: Etude sur le système circulatoire, Paris, 1894.

[3] Do the Kidneys Have Secretory Nerves? Editorial, The Journal A. M. A., Dec. 6, 1913, p. 2073.

BACTERIOLOGIC STANDARDS FOR DRINKING WATER

About two years ago a commission was appointed by the Secretary of the Treasury following recommendations made by the United States Public Health Service to investigate the quality of drinking water furnished to travelers by common carriers. Affecting as it does all who travel, the question is one of practical importance to public health authorities. The commission was asked specifically to recommend standards of purity for drinking water supplied to the public by public carriers in interstate commerce. After devoting more than a year to a consideration and discussion of the problem, the commission has not yet arrived at a satisfactory consensus of opinion on a number of minor questions. In the meantime, however, the importance of establishing certain limiting requirements, and the fact that the commission is of one opinion on the essential points of such requirements, have made it seem desirable to incorporate its findings thus far in a progress report.[1] Recommendations contained in this report have been embodied in Interstate Quarantine Regulations in accordance with a letter of promulgation issued by the Secretary of the Treasury under date of Oct. 21, 1914. In the future common carriers will be required to furnish water for passengers in interstate traffic which will comply with the following criteria:

1. Water supplies conforming to the prescribed requirements shall be free from injurious effects on the human body and free from offensiveness to the sense of sight, taste or smell.
2. Supplies of the quality required shall be obtainable by common carriers without prohibitive expense.
3. The examinations necessary to determine whether or not a given water-supply meets the requirements shall be as few and as simple as consistent with the end in view.

The commission's report is specific in pointing out that "the recommendations here presented are limits of permissible impurity and in no sense standards of purity." They are recommended "not as the nearest approximation to purity which it is desirable to attain, but, on the contrary, as the farthest deviations from purity considered permissible in the water-supplies with which this report deals." It is also emphasized that these limits are only for application to the special case in question.

Because of the difficulty in correlating what might be regarded as objectionable physical and chemical properties of water with definite effects on the health of the user, and because of the minor sanitary importance at most of regulating this class of impurities, these questions have been left for further discussion, and the present report deals only with the more important matter of bacteriologic standards. It is furthermore recognized by the commission that strict specifications for a water which shall at all times be undoubtedly safe are justified by reason of the comparatively small quantities of water used by common carriers and the ready availability of methods of purification which permit the furnishing of a water of high bacteriologic purity without imposing an undue burden on common carriers.

The standards proposed, and which have been incorporated in the Interstate Quarantine Regulations, are briefly the following:

1. The total number of bacteria developing on standard agar plates after twenty-four hours' incubation at 37 C. (98.6 F.) shall not exceed 100 per cubic centimeter. The estimate shall be made from not less than two plates showing such numbers and distribution of colonies as to indicate that it is reliable and accurate.
2. Not more than one out of five 10 c.c. portions of any sample examined shall show the presence of organisms of the *Bacillus coli* group when tested by a specified procedure.

The formation of 5 per cent. of gas in lactose peptone broth incubated for forty-eight hours at 37 C. in the original sample, the development of acid-forming colonies on lactose litmus agar plates or of bright red colonies on Endo's medium plates prepared from the fermenting tube, and the subsequent formation of gas occupying 10 per cent. or more of the closed arm in lactose peptone broth inoculated with typical colonies from either of the foregoing plates, constitute the criteria for the presence of organisms of the *Bacillus coli* group which shall be used in interpreting the second specification.

It is further recommended that one portion of 1 c.c. and one portion of 0.1 c.c. of the sample be plated in lactose peptone broth in order to demonstrate more fully the extent of pollution in grossly polluted samples and that the culture mediums and methods used shall be in accordance with the specifications of the Committee on Standard Methods of Water Analysis of the American Public Health Association, as set forth in "Standard Methods of Water Analysis, A. P. H. A., 1912."

---

[1] Pub. Health Rep., Nov. 6, 1914.

The reasonable character of these regulations, the feasibility of compliance on the part of the common carriers without undue expense, the degree of protection that such compliance will afford to travelers and the relative simplicity of the routine tests that are recommended are sufficient evidence of the serious thought which has been given to this important matter by the members of the commission, to whom much credit is due for this satisfactory outcome of their labors.

THE SIGNIFICANCE OF STARCH-DIGESTING ENZYME IN THE URINE

In the evolution of clinical diagnosis in recent years the attempts to find suitable chemical indications of functional disorders have been decidedly conspicuous. Now and then some test, like that involving the altered excretion of phenolsulphonephthalein by the kidneys in conditions of health or disease of these organs, finds a permanent application in practical medicine. The majority of the proposed procedures, on the other hand, represent a momentary enthusiasm on the part of some investigator. He elucidates his method with a few clinical illustrations that seem to demonstrate its utility. Presently the new test is subjected to a rigorous experimental critique and is found to be devoid of the fundamental requisite of a good test, namely, its limitation to well-defined conditions and its applicability to a restricted number of phenomena. Any reaction which fails to possess this feature of being characteristic, that is, of being exemplified by few substances at most or under a few conditions at best, loses its claim to be rated as a "test."

The urine has furnished the basis for almost innumerable attempts to devise functional tests based on chemical reactions. In some cases, as in the detection of glycosuria and albuminuria, the appearance of constituents normally absent from the urine has afforded the diagnostic reaction. In other instances, as in the study of acidosis or other metabolic disturbances, the clinical chemist has learned to ascertain the deviations of normally present urinary components like ammonia and uric acid, from their usual and readily explicable concentration. The ideal aim is to find some easily detectable or determinable substance of which the origin or physiologic history is definite. Too often the variables in the problem are so manifold that the practical solution fails.

The study of the attempts to employ the estimation of the amylolytic power of the urine as a functional test in clinical medicine well illustrates the necessity of learning the underlying facts before the use of a reaction of this sort is advised. A starch-digesting enzyme is commonly present in the urine. It is not difficult to obtain some conception of the concentration of the amylase. The latter is found, within the organism, in digestive glands and their secretions, in the blood and secretion of the kidneys. Diminution of the amylase in the urine has been described as evidence of impermeability of the kidneys. Obviously it is equally logical to conceive a lowered output of the enzyme to be due to diminished production at the various sources from which it is normally derived prior to its renal excretion; or even to an increased destruction of circulating amylase by some physiologic or pathologic agency. And accordingly one finds the urinary output of amylase related by the diagnosticians to altered pancreatic function (leading to an altered return of pancreatic amylase to the blood and thus to the urine). Indeed, from a still different point of view it has even been taken as an index of altered absorption of amylases from the digestive tract and hence as evidence of abnormal gastro-intestinal conditions.

It is not surprising, as King[1] remarks in connection with his elaborate investigation of the blood and urinary amylase conducted at the Hull Laboratory of Physiology of the University of Chicago, that amylase elimination has not been adopted more generally as a diagnostic measure either with a view to testing the functional capacity of the kidney or in order to diagnose pancreatic lesions. The physiologic conditions governing the elimination of the enzyme, as well as its actual source, have not been known definitely enough. The immediate source of the urinary amylase is the amylase present in the blood. King's experiments, as well as those of earlier investigators, show that the variations in the amount of amylase in the urine, independent of the amount in the blood, may depend on the permeability of the kidney, the condition of the renal epithelium, and on the normal physiologic variation in renal activity. It is possible that amylase may act as a stimulus resulting in its own elimination just as does urea or dextrose.

If the amount of amylase in the urine depends not only on the functional capacity of the kidneys, but likewise on the amount finding its way into the blood, how about the source of the latter? There is evidence that the salivary amylase may appear in the urine; for those animals which secrete ptyalin eliminate in the urine more amylase per kilogram of body-weight than those which do not secrete a starch-splitting enzyme into the mouth. Removal of the pancreas results in a decrease in urinary amylase, thereby suggesting that the pancreas is a direct source of amylase. Trauma of the pancreas and lesions causing obstruction to the natural outflow of the pancreatic juice lead to an increase of amylase in the urine, pointing to a direct passage of the enzyme from the gland tissue into the blood. The blood can, therefore, probably receive amylase by at least two paths, namely, directly from the glands and indirectly from the digestive tract. There are unquestionably sources of amylase other than the salivary and pancreatic glands; for even after removal of both of these there is not a complete disappearance of the urinary starch-digesting enzyme. The kidney itself may be a source; the liver, muscles, spleen and leukocytes all contain amylase and may serve as sources. Thus the increase of amylase in the blood and urine of animals dying of acute infections may be due to the greater destruction of the leukocytes accompanying the leukocytosis.

---

[1] King, C. E.: Studies on Blood and Urinary Amylase, Am. Jour. Physiol., 1914, xxxv, 301.

King's investigations show further not only that amylases enter the blood directly from the tissues, but also that when once in the blood the enzyme is destroyed much more slowly than is the case during its passage through the intestinal mucosa. Feeding experiments with amylase indicate that only in case the digestive tract is flooded with the enzyme does enough pass into the blood to bring about a significant increase in the urine. Aside from variations in the excretory factor, therefore, there are indications that fluctuations in the amylolytic power of the urine may be due to increased or decreased production of amylase within the body, to an obstruction to the normal outflow from the pancreas or salivary glands, to injury of the pancreas, to decreased absorption from the intestinal lumen, to the liberation of glycogenolytic enzyme, and possibly to leukocytosis. We can well agree with King's conclusion that quantitative estimations of urinary amylase alone would have but little significance as a diagnostic point. Perhaps a long series of tests coupled with an accurate history may serve as a useful supplement in the diagnosis of renal, pancreatic and obstructive lesions.

Current Comment

FLAVORS AND VITAMINS

The term "vitamin" was first applied by Funk[1] to a substance isolated from rice and occurring only in the outer portion of the grain, which is removed in polishing rice. The fact that beriberi is caused by an exclusive diet of polished rice, but may be prevented by the addition of this vitamin to such a diet, leads to the conclusion that that disease is due to the absence of this substance from the diet. Other substances have been classed as vitamins, not because of proved chemical relationship to the vitamin of beriberi, but because their presence seems to be necessary to prevent other diseases from developing. Thus Funk believes we have a vitamin of beriberi, one of scorbutus, of pellagra, etc. The discovery of the vitamins has emphasized the value of those elements of the food, which, although present in minute amounts, exercise a determining influence in the utilization of the ordinary articles of diet. The significance of this new knowledge is emphasized by Garrod[2] in his address before the British Medical Association at its recent meeting. As Garrod says, "the immense practical importance of these hitherto unknown factors is in the fact that once the missing element—the vitamine—is discovered, a specific remedy for the disease has been found." That the nutritive value of a diet does not depend wholly on its calorific value must be admitted. The importance of flavors, spices, and of the preparation of food so as to arouse the esthetic senses — in other words, the nutritive value of good cooking — has been pointed out by Sternberg[3] of Berlin, who insists that the science of cookery is not merely the application of chemistry and physics, but rather an application of the physiology of the senses, applied psychology and esthetics. The spices and flavors used by the cook, Sternberg suggests, may be closely allied to the vitamins if not identical with them. They may stand in the same relation to loss of appetite and health in general, that the specific vitamins do to particular diseases. As loss of appetite is frequently the forerunner of deficiency of nutrition, it is possible that special flavors and spices may be required for special cases and that the search for these may reward the investigator with a clearer idea of how to meet many of the indefinite ailments that elude our most precise means of diagnosis. In this connection it is worth while to note the action of harmless microorganisms in producing flavors, possibly containing vitamins. The work of Evans, Hastings, Flint and Hart[4] showed that the development of the characteristic flavor of Cheddar cheese depended on a symbiosis of organisms of various groups impossible to secure from pasteurized milk. With the use of various starters the flavor could be varied, but the process of heating the milk destroyed, in some way, the delicate interrelations of bacteria on which the characteristic flavor of the product prepared from raw milk depends. Such researches suggest unlimited possibilities in a branch of pathology which has hitherto received scant attention.

THE URINARY CREATININ OUTPUT OF NORMAL WOMEN

In establishing so-called normal values for various bodily functions and likewise in relation to the chemical composition of body fluids and secretions it has been common in the past, for reasons alike of custom and of convenience, to obtain the data from healthy men. In many instances there is no obvious or inherent reason why the facts thus elicited should differ from those which might be furnished by determinations made on the other sex. For example, one would scarcely expect the composition of the circulating fluid in woman to vary essentially from that which pertains in man. The conspicuous difference in the muscular development of most women in contrast with the usual male type suggests the possibility that any factors involving incidents of muscular metabolism might show quantitative variations, particularly in their absolute amounts in the two sexes. That this possibility may be realized is borne out by data which have lately been submitted from the department of chemistry at the Woman's Medical College of Pennsylvania in Philadelphia.[1] Shaffer[2] considers the urinary creatinin an index of muscular catabolism and believes that sex *per se* has no influence on the excretion of this substance. The creatinin coefficient of woman will therefore be comparable to that of man provided that the muscular efficiency and the amount of adipose tissue is the same. In view of this it is interesting to note that the creatinin excretion of a group of women medical students, who might properly be considered as normal individuals, and who were on a strict creatinin-free and creatin-free diet for two days or longer, ranged from 10 to 25 mg. per kilogram of body-weight. A still more recent report of the composition of the urine of a group of women nurses in the Wesley Memorial Hospital, associated with the Northwestern University Medical School in Chicago,[3] makes it evident that the subjects studied exhibit a low creatinin excretion in comparison with the usual values found for men. There is no peculiarity in the distribution of other nitrogen factors, and no reason is apparent why there should be. Quite possibly, as has been suggested, in the case of creatinin, the fact of lower muscular development and perhaps of lower muscular tone will account for the observed findings. Shaffer has found that what he calls the creatinin coefficient, that is, milligrams of creatinin nitrogen per kilogram of body-weight, ranges from 8 to 11 for normal men. In the case of the twenty-six women referred to[1] the comparable coefficient was below 8 in all but two cases. The latter exhibited unusual muscular development and were accustomed to vigorous gymnastic work. It is probable, from the large series of data on the female sex thus made available, that individual women who through training have maintained a good muscular tone may excrete creatinin in amounts comparable with men. The fact that the average woman tends to confine herself to sedentary occupations and neglect physical exercise, so that her muscular efficiency is reduced in comparison with that of men of the same stature, will doubtless explain the relatively low output of creatinin of females.

---

[1] Funk, Casimir: Die Vitamine, Wiesbaden, 1914.

[2] Garrod: Brit. Med. Jour., Aug. 1, 1914, p. 233.

[3] Sternberg, W.: Arch. f. Verdauungskrankh., 1914, xx, No. 2, abstr., The Journal A. M. A., May 23, 1914, p. 1696.

[4] Evans, Alice C.; Hastings, E. G., and Hart, E. B.: *Bacteria Concerned in the Production of the Characteristic Flavor in Cheese of the Cheddar Type*, Jour. Agric. Research, June, 1914, p. 167. Hart, E. B.; Hastings, E. G.; Flint, E. M., and Evans, Alice C.: Relation of the Action of Certain Bacteria to the Ripening of Cheese of the Cheddar Type, ibid., p. 193.

THE LESSONS OF A UNIQUE CASE OF DIABETIC ACIDOSIS

An intelligent mastery of many of the problems that arise in the practice of medicine calls for an accurate appreciation of quantitative factors. The ophthalmologist who is making adjustments of a delicate nature depends on careful measurements of certain functions of vision and parts of the eye for guidance in his procedure. Every therapeutist who administers drugs ought to have more than a superficial knowledge of their dosage. Even in matters of diet the importance of a knowledge of the fuel value of foods has begun to be recognized. It is surprising at times to note the errors which creep into applied medicine owing to ignorance of standards: in other words, to a lack of acquaintance with the quantitative features of the subject. A patient is given a quart of milk a day—scarcely 800 calories of food—and is expected to be maintained on it. Infinitesimal doses of active agents are expected to initiate heroic changes. A characteristic case is frequently shown in the treatment of acidosis in which the administration of alkali is indicated, but the quantities prescribed, though large in comparison with customary or even large doses of alkaloids or iodids or salicylates, are nevertheless sometimes almost insignificant in their relation to the acidity to be neutralized or corrected. In diabetic acidosis the quantity of the pathologically occurring acids in the urine often reaches from 15 to 20 gm. a day. It has been known to reach 150 gm., in which beta-oxybutyric acid predominates over its companion diacetic acid. These colossal amounts call for enormous quantities of alkali carbonate for their neutralization. Czapski[1] has recently described what is, as far as we are aware, one of the most extreme cases of profound acidosis ever recorded. The patient, a youth aged 16, passed through two severe periods of intense acidosis with threatening coma, at the Krankenhaus am Friedrichshain in Berlin. During the first of these, in which the beta-oxybutyric acid approached 90 gm. on each of four days, an untoward outcome was averted by intravenous injection of 100 gm. and more of sodium bicarbonate per day. In a second period, ending in death, the output of beta-oxybutyric acid and aceto-acetic acid together reached 143 gm. as a daily maximum, and persisted at about 100 gm. or more during nine days. The total output of these acids in ten days prior to the fatal outcome was more than a kilogram (1,085 gm.). More than 900 gm. of sodium bicarbonate were administered during this period without producing even a neutral reaction in the urine. These are unique data, the reliability of which is attested by the fact that they were collected in the clinic of an expert in this field of medicine, Magnus-Levy. Previous recorded cases involving an excretion of more than 100 gm. of these organic acids per day have shown a persistence of three days at best before either marked improvement or death ensued. There can be little doubt, from other facts furnished in the chemical report of Czapski, that the acids existed in part actually free in the urine; that is, there was a large deficit of bases to serve in the neutralization equilibrium. It is obvious that under such circumstances heroic doses of alkali carbonate and every available channel of introduction — by mouth, intravenously or subcutaneously — are called for. Grains of bicarbonate must be replaced by drams.

---

[1] Tracy, Martha, and Clark, Elizabeth E.: The Excretion of Creatinine by Normal Women, Jour. Biol. Chem., 1914, xix, 115-117.

[2] Shaffer, P. A.: The Excretion of Kreatinin and Kreatin in Health and Disease, Am. Jour. Physiol., 1908, xxiii, 1-22.

[3] Hull, Mary: Some Observations on the Excretion of Creatinin by Women, Jour. Am. Chem. Soc., 1914, xxxvi, 2146.

---

[1] Czapski, L.: Beitrag zur Kenntnis und Behandlung des Coma diabeticum, Inaug. Diss., Berlin, 1913; Ein Fall extremster Acidosis im Verlauf des Diabetes *mellitus*, Arch. f. exper. Path. u. Pharmakol., 1914, lxxvii, 218.

NEWS OF THE WAR

In the index in this number of The Journal an increase may be noted in the number of headings devoted to war subjects. The words "war," "army," "wounded" and "wounds" are followed by numerous references occupying from three to ten times the amount of space devoted to them in previous indexes. In this issue of The Journal also appears a letter from Sir William Osler[1] which, as he states, should interest his friends both in the United States and Canada — and does this not embrace the whole profession? The views which he expresses concerning the surgical and the sanitary aspects of the war are of the highest scientific value.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

ILLINOIS

Chicago

Personal.—Dr. Frank A. Stahl has returned after five months abroad.——Dr. George W. Mahoney was elected vice-commander and Dr. Frank P. St. Clair, surgeon, of the Veteran Corps of the Seventh Infantry, Ill., N. G., at its third annual meeting, December 19.

To Boil Water.—Health Commissioner George B. Young, on December 17, sent a warning to all persons living within the district bounded by Chicago, Belmont and Western Avenues and Lake Michigan, to boil all drinking water until further notice, on account of typhoid infection having been found in the wells of the Chicago Avenue pumping station.

INDIANA

Academy of Medicine Incorporated.—The Academy of Medicine of Logansport has been incorporated under the laws of the state, without capital stock. The directors are Drs. Rodney E. Troutman, Charles H. McCully, Henry B. Hill and others.

Personal.—Dr. George W. Brown has resigned as health officer of Frankfort on the ground of inadequate compensation.——Dr. Fred M. Towles, Indianapolis, fell on the pavement, December 2, and suffered a compound fracture of the right leg.——Dr. Thomas Ray Morrison, Churubusco, is seriously ill at Lynn, Fla., as the result of a cerebral hemorrhage.

IOWA

Small-Pox Rather than Vaccination.—In a family at Davenport a case of small-pox occurred in a son, who was removed to the isolation hospital. Vaccination of the other members of the family was advised by the health authorities. This was refused. A week later the family was placed in strict quarantine because five other members of the family developed pronounced cases of the disease.

Personal.—Dr. M. Charles Mackin has been appointed first assistant superintendent of the Clarinda State Hospital, succeeding Dr. George Donohoe, Knoxville, promoted to superintendent of the Cherokee State Hospital, succeeding Dr. Mathew N. Voldeng promoted to superintendent of the new State Epileptic Colony, Woodward.——Dr. Arthur C. Echternacht has resigned as health officer of Mason City.

Foot-and-Mouth Disease Interferes with Agricultural Courses at State College.—On account of the presence of foot-and-mouth disease in some sections of the state and the great danger of spreading it further through public meetings of farmers, Iowa State College has decided not to hold its usual short course for farmers at Ames, December 28 to January 2, this winter. Dates for extension department courses in counties now under quarantine are also to be canceled.

KENTUCKY

Epizootic Among Rabbits.—The state fish and game commission has appealed to the State Board of Health to investigate the cause of the death of many rabbits in Carlisle County. [It will be remembered that a similar outbreak has been reported from Indiana.]

Memorial Operating Room Opened.—A new operating room in memory of his father, the late Dr. Charles A. Long, was presented to the Masonic Widows' and Orphans' Home, Louisville, recently by Charles R. Long. The gift was accepted by the president of the board of directors and Dr. Ap Morgan Vance, president of the medical board of the institution.

Personal.—Dr. Joseph F. Cook, Louisville, while crossing the street, was struck by an automobile recently, suffering injuries of the head and body.——Dr. Virgil F. Barker, Newport, has returned from abroad.——Dr. William E. Gary, chief milk inspector of Louisville, was attacked and beaten by two men at his house in Avoca.——Dr. Anderson D. Park, Rockport, has been elected president of the Rockport Deposit Bank.——Dr. Charles A. Nevitt, Lexington, has returned home after an operation for appendicitis.

LOUISIANA

Personal.—Dr. Randell Hunt, Shreveport, has been elected president; Dr. H. W. Schofield, vice-president, and Dr. Louis Abramson a director of the Caddo Parish School Board.

Pesthouse Should Be Burned.—Dr. Oscar Dowling, Shreveport, president of the State Board of Health, after a personal investigation of the New Orleans Small Pox Hospital, reports that the building is unfit for human habitation and should be burned.——The city is making arrangements for the construction of an isolation hospital.

Improvements of Leprosarium.—A contract has been let for $39,560 to improve the State Leper Home at Indian Village, Iberville Parish. Under this contract the home will acquire two large new cottages, a clinical building, a powerhouse, electric light, cold storage, and a refrigerator plant and the system of sewerage, drainage and plumbing.

Rucker Testifies on Rat Proofing.—At the hearing of the case instituted to test the validity of the rat proofing ordinance of New Orleans, Assistant Surgeon-General William C. Rucker, U. S. P. H. S., gave a review of the work done by his department and detailed the state and city activities which resulted in the eradication of bubonic plague from New Orleans.

Fraternity Chapter Installed.—On December 10 the Alpha of Louisiana chapter of the Alpha Omega Alpha Medical Scholarship Society was installed at the medical department of Tulane University, New Orleans.

MINNESOTA

Follow-Up Society Organized.—The Association of Patients and Ex-Patients of the Minnesota State Sanatorium for Consumptives has recently been organized. Its purpose is to follow up all patients discharged from the sanatorium, find suitable work for the people who are recovering their health, and secure health legislation to advance the interests of the convalescents. Only persons who have been patients at the State Sanatorium, Walker, for three months or more, are eligible for membership. Dr. George William Beach, superintendent of the sanatorium, is chairman of the association and its official organ is the *Pine Knot*.

MISSOURI

Personal.—Dr. William H. Hays, Hannibal, was accidently shot in the right leg while on a hunting trip, December 3, and is under treatment at the Levering Hospital.

Club Organized.—The Physicians and Surgeons Club of Springfield was organized December 1, with an initial membership of thirty-eight. Dr. Frank B. Fuson was elected president; Dr. Joseph W. Love, vice-president, and Dr. Murray C. Stone, secretary-treasurer.

State Board of Health.—The State Board of Health held an examination at St. Louis for applicants for license to practice, December 14, 15 and 16.——The board has begun the free distribution of prophylactic typhoid vaccine manufactured at the state university under the supervision of Dr. Mazyck P. Ravenel.——The board is giving free antirabic treatment to persons bitten by animals. The serum is supplied by the United States Public Health Service and administered under the direction of the state bacteriologist at Jefferson City.

---

[1] Correspondence, Medical Notes on England at War. Sir William Osler, The Journal, this issue, p. 2303.

St. Louis

Memorial Meeting. — Washington University Medical School held a memorial meeting for Dr. Washington E. Fischel, a recently deceased member of the faculty. Dr. Abraham Jacobi of New York was one of the principal speakers.

Free Antitoxin.—As the result of a report of thirty new cases of diphtheria on December 2, Dr. Max C. Starkloff, health commissioner, has obtained from the comptroller an appropriation of $1,000 for the purchase of antitoxin to be used for the poor.

Visit of Dr. Vaughan.—Dr. Victor C. Vaughan, Ann Arbor, Mich., President of the American Medical Association, was the guest of the St. Louis Medical Society at its meeting on December 12, and addressed the members on "Professional Ideals." Dr. Abraham Jacobi of New York also delivered a short address.

Children's Hospital Opened.—The St. Louis Children's Hospital was thrown open for the reception of patients on December 3. On December 12, 13 and 14 the buildings were inspected by the physicians of the city. The hospital is connected with Washington University Medical Department and the Barnes Hospital.

University Dispensary Opened.—The new dispensary of the Medical School of Washington University was opened December 14. This institution has facilities for the treatment of 150,000 patients a year. The clinics of Washington University on Jefferson Avenue, O'Fallon Dispensary on Locust Street and St. Louis Children's Hospital, were closed December 12, and the patients formerly treated are now being sent to the new dispensary which occupies two floors of one of the new university buildings on Euclid Avenue. One of the special activities of the new dispensary will be the social service department which will have in its charge the investigation of the home conditions which produce disease, and devise plans for correcting them.

NEW YORK

Free Wassermann Test.—Dr. Frederick W. Sears, health officer of Syracuse, announced on December 9, that henceforth the Wassermann test will be given free of charge to any person in the city who desires it.

Sanatorium Proposition Defeated.—By a vote of sixteen to eleven, the Otsego County Board of Supervisors, on December 11, defeated the proposition to put the question of the erection of a county tuberculosis sanatorium to a vote at the general election next fall.

New Tuberculosis Hospital.—A special committee of the Board of Supervisors of Cattaraugus County, appointed to establish a county tuberculosis sanatorium, met in Olean December 10, and signed the final papers which gave the county title to land in Rock City as a site for the institution, the construction of which will begin in the early spring. The building will accommodate from 36 to 40 patients.

Message to Health Officers.—The current issue of *Monthly Bulletin of the New York State Department of Health* contains a message to the health officers of New York state from Dr. Montgomery E. Leary, Rochester, president-elect of the New York State Sanitary Officers Association, in which he outlines a plan for still further increasing the usefulness of the association in the promotion of public health. This plan includes the establishment of branches of the association in every county, and of auxiliary organizations among the laity.

New York City

Personal.—Dr. Alvah H. Doty has been appointed consulting expert on communicable diseases in the State Department of Health. Dr. Theobald Smith has been appointed consultant in animal pathology.

PENNSYLVANIA

Will Establish Private Hospital.—The Southern Schuylkill County Medical Society has decided to establish a large private hospital at Schuylkill Haven.

Personal. — Dr. B. F. Haagen, Altoona, was seriously injured in the spine and left arm by the overturning of his automobile in Collinsville, December 7.——Dr. J. Clyde Enos, Charleroi, sustained a fracture of the skull and injuries to the spine in a collision between his automobile and a street car.——Dr. Johnston McLanahan, Chambersburg, is reported to be seriously ill with heart disease.

Philadelphia

Personal.—Drs. Charles Snowden Pancoast and E. Kilbourn Tullidge, sailed December 8 for Genoa, Italy, on their way to Vienna where they will serve as volunteers in the military hospitals.

Fair for War Relief.—At the Made-in-America fete held in Horticultural Hall, December 14 to 16, the proceeds of the doctors' booth were devoted to the sending of surgeons and medical supplies for the relief of those in the war zone, and the proceeds of the American Ambulance Ball, December 15, were utilized for the establishment of beds in the newly planned Philadelphia ward of the American Ambulance, Paris.

TEXAS

Personal.—Dr. E. D. Fyke, Fort Worth, has been appointed state health officer.——Dr. Irvy L. McGlasson, for four years state quarantine officer at Galveston, will relinquish his office and return to Waco to practice February 1.——Dr. Morris H. Boerner, Austin, has resigned as assistant state health officer, to take effect January 15.

Free Diphtheria Antitoxin for the Poor.—Diphtheria is said to be prevalent throughout the state of Texas, though in a mild form. Arrangements have therefore been made through the State Board of Health with local health officers, whereby those unable to pay for it may obtain diphtheria antitoxin free in the larger cities of the state and at very low prices in other portions of the state.

State Board Appointments.—The governor has made the following appointments of the State Board of Health: Drs. Lawrence W. Hollis, Abilene; Carl W. Hoeflich, Houston; Louis M. Weinfield, San Antonio; Hugh L. McLaurin, Dallas; William D. Littler, Fort Worth; Harmon J. Childress, Gilmer, and E. M. Wood, Georgetown.——State Board of Medical Examiners: Drs. J. J. Williams, Groesbeck; John H. McLean, Fort Worth; Arthur M. McElhannon, Sherman; John S. McCelvey, Temple; William B. Collins, Lovelady; H. B. Mason, Temple; L. S. Scothorn, Dallas; Horace C. Morrow, Austin; Thomas J. Crowe, Dallas; Marion A. Cooper, Childress, and F. M. Butencourt, Falls County.——Quarantine Officers: Drs. Duke H. Huffaker, El Paso; S. E. McCain, Brownsville, Marquis D. L. Jordan, Velasco; Everette O. Arnold, Corpus Christi; Justus S. Davidson, San Felipe, and H. C. Hall, Laredo; and Registrar of Vital Statistics: Dr. William A. Davis, Jr., Jourdanton.

WISCONSIN

Personal.—Dr. Ray R. Harris, formerly in charge of the Old Sanatorium, Prairie du Chien, has moved to Dubuque. ——Dr. George Clyde Stimpson, White Creek, has been appointed an intern in the Elgin State Hospital.——Dr. George Wallace Nott, Racine, fractured his right wrist while cranking his automobile, December 8.

CANADA

Faculty Offers Base Hospital Personnel.—The faculty of McGill University has offered the personnel for a mammoth base hospital for foreign service. The British war office has accepted this offer and the personnel and equipment will leave for England in March.

Personals.—The following medical men from Hamilton, Ont., will go with Canada's second war contingent: Drs. Geo. D. Farmer, Ancaster, Ont.; Daniel P. Kappele, William L. Silcox, William F. Nicholson.——Dr. John B. Leathes left Toronto December 13 for England, where he will take up his new duties in the University of Sheffield.——Dr. William E. Struthers, chief medical inspector of schools in Toronto, has resigned and has been appointed chief medical officer of the Workman's Compensation Board of Ontario. ——Dr. Fernand L. de Verteuil, Vancouver, B. C., was the medical officer of the *Good Hope*, recently sunk off the Chilean coast.——Dr. Francis J. Folinsbee, Edmonton, Alberta, has been appointed resident house physician to the Great Ormond Street Hospital for Sick Children, London, England.——Dr. Robert Mayrand, Quebec, is on active service in the war zone as surgeon of Base Hospital No. 1. ——Recently a bust of the late Dr. Emily Stowe was presented to the city of Toronto by a number of her friends. Dr. Stowe was the first woman physician to practice medicine in Ontario.

GENERAL

Church Medical Laboratory.—The medical laboratory authorized by the Missouri Conference of the Methodist Church, South, is to be named the Missouri Valley Foundation for the Conservation of Health. Dr. Daniel Morton, St. Joseph, is secretary of the board and Dr. William H. Minton, St. Joseph, a member of the foundation.

Bequests and Donations.—The following bequests and donations have recently been announced:

Boehme Tuberculosis Camp, Evansville, Ind., $1,000 by the will of Mrs. May Stockwell.

Jackson County, Mich., Antituberculosis Society, residence on West Washington Street, Jackson, to be held in trust after the death of his daughter, Mrs. Julia A. Mersereau, by the will of R. Bruce Coltrin.

Methodist Hospital, Philadelphia, $3,000 by the will of Elizabeth Brines.

A worthy Hospital in Philadelphia, $5,000 to endow a bed for persons suffering from cancer, by the will of Caroline J. Cammerer.

Meeting of Seaboard Physicians.—The Seaboard Medical Association of Virginia and North Carolina held its nineteenth annual session in Goldsboro, N. C., December 8, under the presidency of Dr. John Rainey Parker, Goldsboro. Dr. William L. Rodman, president-elect of the American Medical Association was the guest of honor at the meeting and delivered an address on "Cancer." Norfolk, Va., was selected as the 1915 place of meeting and the following officers were elected: president, Dr. Israel Brown, Norfolk, Va.; vice-presidents, Drs. Cicero F. Griffin, Winston, N. C.; Beverley R. Kennon, Norfolk, Va.; J. R. Parker, Gatesville, N. C., and John W. Winston, Norfolk, Va.; secretary, Dr. Clarence P. Jones, Newport News, Va. (reelected), and treasurer, Dr. George A. Caton, New Bern, N. C. (reelected).

FOREIGN

Revision of Italian Pharmacopeia.—In August the committee was appointed which is to have charge of the revision of the Italian pharmacopeia. It consists of Prof. E. Paterno, senator of the realm and incumbent of the chair of general and analytic chemistry at the University of Rome; Prof. V. Cervello, professor of materia medica and pharmacology at the University of Palermo; L. Pesci, director of the institute for chemopharmaceutics and toxicology at the University of Bologna; the pharmacist, A. Quercia of Bari, and T. Bosio of Turin.

WAR NOTES

Typhoid Epidemic Denied.—Gen. M. P. Melis, chief of the Belgian Medical Corps, in a London dispatch of December 9, denies the report that typhoid fever is epidemic in the Belgian army.

Red Cross Funds to Turkey.—The American Red Cross on December 16, cabled to the American ambassador in Constantinople, $10,000 to assist in the maintenance of numerous hospitals in Turkey.

The Budapest Red Cross Unit.—The Red Cross unit located at Budapest in charge of Dr. Charles McDonald of New York City, has established a hospital with accommodations for 200 wounded.

Red Cross Work in Servia.—The Servian Prime Minister and the Minister of Foreign Affairs have notified the American Minister at Bucharest, Romania, that the American Red Cross unit, under the direction of Dr. Ryan, has taken over the hospitals at Belgrade, Servia, including the medical personnel and pharmacists.

Artificial Pneumothorax on the Firing Line.—Rist relates that a rapidly progressing tuberculous process in the right upper lobe with stormy onset in September, 1913, was arrested by artificially induced pneumothorax, and the young Frenchman took his place last August on the firing line. For a month he was subject to the vicissitudes of the rapidly shifting front rank in the active campaign but came through it in good condition, free from fever or cough. Some effusion in the pleura had helped to maintain the compression of the lung. A little effusion had been noticed just before he left for the front.

Canada Aids Red Cross Work.—The Canadian Red Cross Society has been requested to equip five field hospitals and three field ambulances for the Canadian Contingent. They will aggregate 2,000 beds, a capacity about four times that of the Toronto General Hospital. They will consist of two general hospitals, of 520 beds each; one clearing hospital, 200 beds; two stationary hospitals, 200 beds each, and three field ambulances, 150 beds each. The Aesculapian Club, Toronto, has voted $200 to the Belgian fund; $100 to the Canadian Patriotic Fund and $50 to the fund for comforts for Canadian soldiers.

LONDON LETTER

LONDON, Dec. 4, 1914.

The War

Among the wounded the almost complete absence of rifle bullet wounds is striking; they constitute only about 1 or 2 per cent. The rest are due to shrapnel and to "high velocity" percussion shells. The shrapnel bullet does not make a very bad wound, though it often drives clothing in, but the wounds made by large pieces of common shell are horrible. Heads, arms, feet, etc., are blown off, and in other cases most dreadful flesh wounds and fractures result. The shell fragments drive clothing and mud deep into the tissues and cause both tetanus and spreading gangrene in many cases. The latter are treated by free incisions and injections of hydrogen peroxid subcutaneously, and if the treatment is begun soon enough, life and sometimes limbs are saved. Most of the tetanus cases are fatal, in spite of prophylactic serum.

GALLANTRY OF ARMY SURGEONS

As stated in previous letters, death has taken a heavy toll from the army surgeons, who have shown great bravery in the discharge of their duties. Only about a dozen Victoria crosses, granted only for extraordinary bravery in the field, have been awarded so far in this war, although our troops have fought with all their traditional valor. Another high distinction is the "Distinguished Service Order" (colloquially called the "D. S. O."), which has been awarded to fifty-eight officers in recognition of their services. The list includes three army surgeons who showed great bravery in attending to the wounded under fire. Since my last list another army surgeon has died of wounds, and another is "missing." In the battleship which was blown up, apparently as the result of an accident, three naval surgeons perished.

THE BELGIAN WOUNDED

Some further particulars with regard to the part played by this country in succoring the Belgian wounded may be of interest. When the Germans occupied all the important towns, the Belgian hospitals fell into their hands. The wholesale exodus of the population included all the wounded who could be moved, and furnished a gigantic problem. The British Red Cross was first approached, but as its duty was to attend to the British wounded, it was unable to use its organization. However, they gladly subscribed $5,000, and a "Wounded Allies Relief Committee" was formed. Subscriptions were raised and a small number of convalescent were brought from Antwerp to England. Premises for a hospital were secured at a seaport, Ramsgate. Two English physicians were sent over to Ostend just before its evacuation, and found the appalling condition of 10,000 wounded and 3,000 more to arrive on the morrow. Every available space and even railway sidings were crowded by the wounded. There were few surgeons or trained nurses and hardly any medical stores. The British government then came to the rescue and sent transports which brought away the wounded to England, where the naval and military authorities helped to disembark them. In the meantime telegrams were sent to the mayors of a number of large towns, asking if they would receive batches of fifty wounded Belgian soldiers and see that they were properly treated at the local hospitals, to which they readily assented. The Admiralty sent to Ostend as many as five transport ships in thirty-six hours, and from October 12 to 15, 12,000 wounded were brought away. At the present time 18,000 wounded Belgians are under treatment in England. When they become convalescent they are sent to private houses whose owners have offered their hospitality. Thus by the cordial cooperation of the government and private citizens this gigantic problem has been efficiently solved.

OUTBREAK OF TYPHOID FEVER IN THE BELGIAN ARMY

An epidemic of typhoid fever is threatening in West Flanders and Northeastern France. Many of the Belgian soldiers have been attacked, which is causing some concern to the British Army Medical Service, lest the disease should spread to our troops who are fighting in close cooperation with the Belgians. Cases are coming into Calais at the rate of about ten a day. The British Red Cross has acted with great promptitude and made an immediate grant of $50,000 for the Belgian soldiers at Calais suffering from typhoid fever. The French authorities have given orders for a ship to lie in the dock basin to which the fever patients will be conveyed as soon as the diagnoses are made, and arrangements for the erection of an isolation hospital are under way. Thanks to the extensive inoculation of the British troops, very few cases have occurred among them.

THE MANUFACTURE OF ANILIN DYES

As most of the anilin dyes are manufactured in Germany and their import has been prohibited since the war, a difficulty has been created in the textile industries. To meet this emergency the government has endeavored to induce British manufacturers of dyes to turn their attention from the making of dyes for export to the making of dyes necessary for our own industries. To aid those manufacturers the government has taken steps to persuade works used for the distillation of coal-tar to produce the intermediate bases of the dyes which hitherto have been mainly obtained in Germany. But these emergency arrangements will supply no more than one-third of the consumption of dyes in this country. It has been proposed to form a national organization for the production of dyes, and the government has offered to support it on the conditions that those engaged in it subscribe the whole of the ordinary capital and that they also undertake to continue to buy their dye-stuffs from this cooperative concern. If the consumers will subscribe $12,000,000, the government is prepared, subject to a certain control, to guarantee debenture interest on another $7,500,000. The government will require that it have two nominees on the board, that it have the right of veto to secure that the concern shall remain permanently under British control, and that the large consumer shall have no advantage in price over the small consumer.

ESTABLISHMENT OF A LARGE HOSPITAL FOR THE WOUNDED

The government has placed at the disposal of the War Joint Committee of the British Red Cross and the St. John Ambulance Association the new Stationery Office in London which will be adapted to the needs of a hospital for the wounded. It is estimated that the hospital will contain 1,650 beds. An appeal is being made to the public for their equipment and money is being subscribed at the rate of about $50,000 a day; $125 provides a bed and its necessary equipment. To each bed so provided will be affixed a tablet with the donor's name.

THE PREVENTION OF VENEREAL DISEASE

A national council for combating venereal disease has been formed with the support of the leaders of the medical profession, the churches and others. It marks an important advance in the campaign initiated by Major Leonard Darwin, president of the Eugenics Education Society. Sir Thomas Barlow, who presided at the inaugural meeting, pointed out that, while war conditions limited the possibilities of the movement in some respects, they also opened up opportunities which must not be missed. The aggregation of large bodies of young men in camps offered them a special field. The military authorities were fully alive to their own duties in this regard, and were even now devising an educational scheme for meeting the need in this great national emergency. If they should require aid from the outside, the medical profession would not be slow to put their shoulders to the wheel. The work was heartily welcomed by Lord Kitchener. But the subject had its civil as well as its military aspect, and there was ample room for cooperation by civil authorities and by organizations for social welfare, and not least by women, both medical and lay, and by those excellent agencies which were providing tents and means of sane recreation for the soldiers. While the problem was primarily medical, its solution could not be attained without the hearty cooperation of every kind of agency for social betterment. He moved that the following aims be the objects: 1. To provide accurate and enlightened information as to the prevalence of these diseases, and as to the necessity of early treatment. 2. To promote the provision of greater facilities for their treatment. 3. To increase the opportunities of medical students and practitioners for the study of these diseases. 4. To encourage and assist the dissemination of a sound knowledge of the physiologic law of life in order to raise the standard both of health and of conduct. 5. To cooperate with the existing associations, to seek their approval and support, and to give advice when desired. 6. To arrange, in connection with such organizations, for courses of lectures, and to supervise the preparation of suitable literature. 7. To promote such legislative, social and administrative reforms as are relevant to the foregoing aims and objects.

THE SALE OF DRINK TO SOLDIERS

Another danger to soldiers is being guarded against. The government has issued an order giving the naval and military authorities power to close all saloons within any area for certain hours, either generally or as respects the members of the army and navy. Attempts to elicit information for the enemy by giving or selling intoxicants to seamen or soldiers is made an offense.

BERLIN LETTER

Berlin, Nov. 24, 1914.

The War

According to the latest reports from the seat of war, the number of cases of typhoid and dysentery observed is still small. Whether the opportunity for infection is lacking or the extensive protective inoculations to which our troops have been subjected against typhoid explain this fact cannot be decided at present. The injection material is prepared for the most part according to the improved process of Fornet, at least in Berlin and in the army laboratories, especially in the Kaiser Wilhelm Academy for the instruction of army surgeons. Also the hygienic institutes of the other federal states prepare typhoid and cholera vaccines. With the exception of two persons who wandered over the border, cholera has not been observed in Germany, which is all the more remarkable since it is constantly prevalent in Austria, particularly in the neighboring province of Galicia, and the communication of the disease is facilitated by the combination of the armies. The troops have also been inoculated against cholera but not to so great an extent as against typhoid. In the proceedings of the individual medical societies, which have almost wholly been converted into unions of military surgeons, tetanus occupies a prominent place as formerly. There is still no agreement as to the success of tetanus antitoxin, but the reports of favorable results seem to be increasing. The injection of magnesium sulphate secured at least a symptomatic success, and many an author believes that he has observed a curative effect. It is quite remarkable to what an extent the scientific enthusiasm of our physicians comes into expression under the difficult conditions in the field. In many places scientific societies have been formed in the hostile countries, where from time to time discussions occur. In Lille, a German clinic has been organized out of the university clinic of the Hospital St. Sauveur, which has been transformed by its conductor, Professor Krönig of Freiburg, into a center of scientific activity for physicians in Lille and its neighborhood. In Namur, a German-Belgian physicians' association has been founded which has already held four meetings with thirty to forty participants under the presidency of the garrison surgeon of that place, Professor Schilling, an investigator of tropical diseases from the Berlin Institute for Infectious Diseases. The interpreter is a Belgian army surgeon who studied in Germany for a number of years. This recalls the fact that also in the Franco-Prussian War Professor Langenbeck founded a scientific association in Orleans. In Berlin almost all of the medical societies have united with the greatest medical association of Berlin and also of Germany, the Berlin Medical Society, so as to scatter the material as well as the audience as little as possible. The society meets once in two weeks instead of every week as formerly, alternating with the army medical society which holds its meetings under the presidency of the former Leipsic surgeon, Professor Trendelenburg, who, since resigning his position, is living in Berlin.

PHYSICIANS IN CIVIL PRACTICE

As may be seen from the meetings of the Berlin Medical Society, the number of physicians still carrying on a civil practice is diminishing, although somewhat gradually. The continual increase of the armies by the addition of the reserves demands, on the one hand, a greater number of field surgeons to accompany them. On the other hand, the number of wounded accumulating in the hospitals demands a greater amount of surgical treatment. Naturally, the demands for this work cannot be limited to those physicians who have served as army surgeons, but now those are employed in their home hospitals who, for any physical causes, have not been found fit for military service. All these physicians are paid a sum of twenty marks ($5) a day in addition to their expenses. Germany does not lack money and food for these purposes. Not only in Berlin but also in practically all other parts of the country, so far as it has not been laid waste on the eastern and western boundaries, there is no scarcity of food to be noted on account of the war. According to the statement made by Professor Rubner, the physiologist, a few weeks ago in an article in the *Deutsche medizinische Wochenschrift*, there is no need to fear the subjugation of Germany by hunger.

Marriages

Ossian H. King, M.D., Vincennes, Ind., to Miss Margaret McDonald of Nashville, Tenn., at Vincennes, December 2.

James L. Stewart, M.D., Boise, Idaho, to Mrs. Modjeska Fleharty of California, at Salt Lake City, November 25.

Robert Maffett Palmer, M.D., Pottsville, Pa., to Miss Olive Frances Mayer of Johnstown, Pa., October 22.

John Percival Hewson, M.D., Orange, Texas., to Miss Anna E. Salmon of Wilkes-Barre, Pa., December 3.

Cecil Harrod Dickerson, M.D., Conway, Ark., to Miss Nine Martin of Indianola, Miss., November 25.

Walter M. L. Ziegler, M.D., Philadelphia, to Mrs. Mary Alice Dolson of New York City, November 28.

Henry Joseph Eugene Newnam, M.D., to Miss Lillian F. Hopkins, both of Philadelphia, November 26.

Clarence Herbert Morian, M.D., Arvada, Colo., to Miss Lelah M. Hart of Denver, December 2.

Garrett Lee Hynson, M.D., to Miss Helen Rebecca Sibel, both of Portland, Ore., November 25.

Henry H. Flood, M.D., Baltimore, Md., to Miss Adelaide Selby of Ivory, Md., November 26.

James Berry Gilbert, M.D., to Miss Edna Ruth Wilson, both of Tulsa, Okla., November 29.

Robert L. Schaffer, M.D., to Miss Millie L. Ochs, both of Allentown, Pa., November 30.

Beverly W. Hall, M.D., Bowman, Ga., to Miss Alva Harris at Rome, Ga., November 12.

Deaths

George W. Lasher, M.D. Rush Medical College, 1872; a Fellow of the American Medical Association and formerly president of the Los Angeles County Medical Association and Southern California Medical Society; for twenty-five years professor of surgery in the University of Southern California, Los Angeles, and since 1910 emeritus professor; for eighteen years house physician of the Hollenbeck Hotel, Los Angeles; died at the home of his office associate, Dr. W. F. Perry, in that city, December 4, from cerebral hemorrhage, aged 69.

Johnston McLanahan, M.D. Jefferson Medical College, 1865; a member of the Medical Society of the State of Pennsylvania; formerly president of the Medical Society of Franklin County and treasurer of the organization for many years; surgeon of United States Volunteers from 1863 to 1866; president of the Board of Health of Chambersburg for several years and a director of the Chambersburg National Bank; died at his home in that city, December 13, from valvular heart disease, aged 70.

Jephtha Vining Harris, M.D. Tulane University, New Orleans, 1861; assistant surgeon and chief surgeon, C. S. A., and assistant surgeon, C. S. N., during the Civil War; a member of the Florida legislature, 1877; superintendent of public instruction of Monroe County, Fla., for ten years, and collector of customs at Key West, from 1885 to 1889; died at the home of his son in Key West, Fla., November 21, aged 75.

William H. Capener, M.D. Western Reserve University, Cleveland, Ohio, 1856; examining surgeon for the Army during the Civil War; surgeon of the U. S. Marine Hospital, Cleveland, in 1860 and 1861; health officer of the city, from 1871 to 1873, and surgeon to the City Infirmary for four years; died at his home in Cleveland, December 2, aged 82.

Gard Wilmarth Foster, M.D. Detroit Medical College, 1873; a member of the Medical Society of the State of New York and a specialist in diseases of the eye, ear, nose and throat of Auburn, N. Y.; while en route to Bermuda in search of health, died December 2, in Schenectady, N. Y., from pneumonia, after a surgical operation.

William Taylor Johns, M.D. St. Louis College of Physicians and Surgeons, 1912; professor of physiology and serology in his Alma Mater in 1911-12; director of the Western Wassermann Laboratories, Muskogee, Okla.; was found dead in his office in Muskogee, December 7, from tuberculosis, aged 39.

Moris Drake, M.D. Medical College of Ohio, Cincinnati, 1881; a Fellow of the American Medical Association and a well-known practitioner of Indiana; died at his home in Shelbyville, December 12, from gastric ulcer associated with and dependent on carcinoma of the stomach, aged 58.

James Harper Ramsey, M.D. Western Reserve University, Cleveland, 1871; a veteran of the Civil War; for several years a member of the school board of Bridgewater, Pa.; and once president of the board of health; died at his home in West Bridgewater, Pa., November 25, aged 79.

Robert Harris Bradford, M.D. North Carolina Medical College, Charlotte, 1904; surgeon for the Inter-State Lumber Company, at Burgaw, N. C.; died in the James Walker Memorial Hospital, Wilmington, N. C., November 25, three weeks after an operation for appendicitis, aged 36.

George Edward Maloy, M.D. University of Vermont, Burlington, 1877; for many years a practitioner of Glencoe and St. Cloud, Minn.; but for the last three years a resident of the Pacific Coast; died at the home of his son in Spokane, Wash., November 25, from carcinoma, aged 59.

James Ball, M.D. Kansas City Homeopathic Medical College, 1893; a Fellow of the American Medical Association; for twenty years a practitioner of Ottawa, Kan.; died in Bethany Hospital, Kansas City, Mo., November 26, after an operation for intestinal obstruction, aged 48.

John M. Fraser, M.D. Western Reserve University, Cleveland, 1881; a Fellow of the American Medical Association; formerly a member of the faculty of the Wooster University Medical College; died at his home in Cleveland, November 30, from cerebral hemorrhage, aged 62.

Baldwin Gardiner Cooke, M.D. College of Physicians and Surgeons in the City of New York, 1879; for more than eighteen years medical and sanitary inspector for the Department of Health of New York City; died at his home in New York City, December 8, aged 59.

William T. Heidt, M.D. Savannah (Ga.) Medical College, 1857; one of the oldest members of the Chatham Field Artillery, Savannah, and surgeon of that organization during the Civil War; died at his home in Bloomingdale, Ga., December 7, aged 77.

Albert Brinkman, M.D. New York University, New York City 1883; for many years visiting surgeon to the Brooklyn Eye and Ear Hospital; died at the home of his brother in Brooklyn, December 7, from the effects of an overdose of morphine, aged 52.

Josiah Claire Violet, M.D. Northwestern University Medical School, Chicago, 1910; a Fellow of the American Medical Association and formerly a resident of Chicago; died in Pomona, Cal., where he had gone in search of health, November 22, aged 32.

Jacob F. Trump, M.D. University of Vermont, Burlington, 1881; a specialist of diseases of the eye, ear, nose and throat of Hamilton, Ohio; died in Mercy Hospital in that city, December 8, after the amputation of his right leg for gangrene, aged 63.

William Robert Moore, M.D. Starling Medical College, Columbus, Ohio, 1889; a member of the Ohio State Medical Association and a member of the staff of the Deaconess Hospital, Ironton, Ohio.; died at his home in that city, December 4, aged 41.

George Dexter Bullock, M.D. Jefferson Medical College, 1886; formerly a Fellow of the American Medical Association; a member of the Massachusetts Medical Society; died at his home in Weymouth Landing, Mass., December 6, aged 55.

George Herbert Burke, M.D. Chicago Homeopathic Medical College, 1898; a member of the Hospital Corps during the Spanish-American War, with tropical service; died at his home in Wabash, Ind., December 4, from heart disease, aged 51.

Thomas Osborne Hunter, M.D. Memphis Hospital Medical College, Memphis, Tenn., 1889; a pathologist and health officer of Biloxi, Miss., and at one time state registrar; died suddenly in Biloxi, December 3, from heart disease, aged 46.

Wesley J. Green, M.D. Atlanta (Ga.) Medical College, 1888; a member of the Medical Association of Georgia; for many years a practitioner of Clayton, Ga.; state senator from 1898 to 1900; died in Clayton, Ga., November 28, aged 51.

Sumner A. Stacy, M.D. New York Homeopathic Medical College, New York City, 1886; died at his home in Adamsville, Ohio, December 4, from valvular heart disease, aged 57.

John Harrod, M.D. Eclectic Medical Institute, Cincinnati, 1887; died at his home in Fort Wayne, Ind., December 8, from heart disease, aged 53.

William Grange Dolan, M.D. Rush Medical College, 1902; a member of the Minnesota State Medical Association and for twelve years a practitioner of Cloquet, Minn.; died in Jacksonville, Fla., December 5, from diabetes, aged 37.

Charles S. Albertson, M.D. Homeopathic Hospital College, Cleveland, 1882; a member of the staff of the Oswego(N. Y.) Hospital and of the Medical Society of the State of New York; died at his home, December 7, aged 62.

Elias Lawrence Brownell, M.D. University of Vermont, Burlington, 1868; a pioneer practitioner of Dickinson County, Iowa; died at his home in Spirit Lake, Ia., about December 2, from sciatic rheumatism, aged 71.

Elden Cromwell Sturman, M.D. College of Physicians and Surgeons, Keokuk, Ia., 1897; a member of the Iowa State Medical Society; died at his home in Hartford, Ia., November 29, aged 45.

Robert W. Sharp, M.D. Eclectic Medical Institute, Cincinnati, 1873; a member of the Ohio State Medical Association; died at his home in Buckland, Ohio, about November 22, aged 64.

Milton I. Hatfield, M.D. Eclectic Medical College of Pennsylvania, Philadelphia, 1870; died at his home in Warren, Ohio, November 30, five weeks after a surgical operation, aged 69.

John W. Morgan, M.D. Medical College of the State of South Carolina, Charleston, 1857; formerly of Minden, La.; died at his home in Coushatta, La., November 29, aged 84.

James A. Wamsley, M.D. Jefferson Medical College, 1878; of Philadelphia; died at the German Hospital in that city, December 4, after an operation for appendicitis, aged 63.

Harvey M. Dally, M.D. Medical College of Indiana, Indianapolis, 1881; a physician and druggist of Pontiac, Ill.; died at his home in that place, November 29, aged 59.

Louis Seraphin Poulin, M.D. University of the Victoria College, Coburg, Ont., 1867; died at his home in St. Alexandre d'Iberville, Que., September 26, aged 70.

Isaac R. Hogue, M.D. Hahnemann Medical College, Chicago, 1892; for many years a school teacher; died at his home in Elkhart, Ind., December 2, aged 82.

Ira John Schott, M.D. Hahnemann Medical College, Chicago, 1887; of Naperville, Ill.; died suddenly from heart disease in that place, November 21, aged 54.

James R. Seymour, M.D. Eclectic Medical Institute, Cincinnati, 1883; died at his home in Raymond, Ill., November 28, from cerebral hemorrhage, aged 65.

Solomon Singer, M.D. University of Toronto, Ont., 1903; a coroner of Toronto; died at his home in that city in October, from typhoid fever, aged 37.

John Edward Waterhouse, M.D. University of Colorado, Boulder, 1912; died at the home of his mother in New Orleans, November 27, aged 26.

Shelvey Maddox, M.D. Eclectic Medical Institute, Cincinnati, 1881; died at his home in Monroe City, Mo., November 28, from diabetes, aged 61.

Alexander Peter O'Malley, M.D. New York University, New York City, 1876; died at his home in Wilkes-Barre, Pa., December 12, aged 61.

John T. Anderson (license, Indiana, 1897) a practitioner since 1893; died at his home in Swayzee, Ind., about December 1, from pneumonia.

John Winfield Reith, M.D. Hahnemann Medical College, Philadelphia, 1905; died at his home in Lancaster, Pa., December 9, aged 32.

Adeline Wilkins Wildes, M.D. Boston University School of Medicine, 1881; died at her home in Roxbury, Boston, December 6, aged 74.

John August Lock, M.D. Eclectic Medical College of the City of New York, 1910; died at his home in Brooklyn, December 4, aged 31.

Thomas Henry Moore, M.D. Maryland Medical College, Baltimore, 1912; died at his home in Willimansett, Mass., October 21, aged 26.

Henry Reid McCullough, M.D. Trinity Medical College, Toronto, Ont., 1887; died at his home in Harriston, Ont., October 21, aged 49.

James Frederick Shurtleff, M.D. Albany (N. Y.) Medical College, 1867; of Rock, Mass.; died in Middleboro, Mass., October 22, aged 72.

Charles Henry Reed, M.D. University of Pennsylvania, Philadelphia, 1878; died at his home in Philadelphia, November 24, aged 62.

Harold Middleton Shephard, M.D. McGill University, Montreal, 1910; died at his home in Ingersoll, Ont., October 20, aged 27.

John Clossom Ray, M.D. University of the Victoria College, Coburg, Ont., 1862; died at his home in Toronto, Ont., October 17.

William S. Turner, M.D. Vanderbilt University, Nashville, Tenn., 1882; died at his home in Blakemore, Ark., December 1, aged 60.

Sidnar Morgan (license, Colorado, ten years of practice, 1900) died at his home in Denver, Colo., November 23, aged 60.

C. H. Bates, M.D. Kentucky School of Medicine, Louisville, 1871; died at his home in Osyka, Miss., September 23, aged 67.

George Mitchell, M.D. Bellevue Hospital Medical College, 1866; died at his home in Wallaceburg, Ont., October 2, aged 78.

Willard A. Hall, M.D. Miami Medical College, Cincinnati, 1876; died at his home in Yoakum, Texas, December 2, aged 63.

Robert Lee Rye, M.D. University of Louisville, Ky., 1897; died suddenly at his home in Porter, Okla., December 4, aged 43.

Allan Aleyne Mathews, M.D. Rush Medical College, 1879; of Oak Park, Ill.; died November 19, aged 61.

Correspondence

Medical Notes on England at War

To the Editor:—I dare say my many friends in the United States and Canada would like to have a few notes of my recent experience during these busy months.

It has been an extraordinarily interesting sight to watch the transformation of a peaceful commercial country into an armed camp. As regards soldiers, four months ago England was in the same blissful condition as the United States. One knew there was an army, but a soldier was never seen. To-day khaki is the "only wear," and there are more than 1,000,000 in training, and some 300,000 at the front, a larger expeditionary force than England has ever had on the Continent. And there is a fine spirit abroad. Every one is working, the Irish question is dead, an intense pride has been raised in the army, there is every confidence in the navy. At the first blush it really looks as if war were a good thing, a fine tonic to the country at large; but behind all this is the tragedy of the shambles at the front, and the hospitals are full of poor fellows battered and shattered, so that one has not to go far to realize the truth of Sherman's famous words that "War is Hell."

For the medical work England was not wholly unprepared. The lessons of the South African War sank deeply and gave a good many men now in the prime of life a most helpful experience. Then in the reorganization of the territorial army five or six years ago the country was divided into military districts, in each one of which a base hospital was organized. Thus Sir Alfred Keogh, the Director-General, and Colonel James came here, met the profession, explained the details of the reorganization, and left the matter in the hands of a committee who nominated the staff, selected the buildings, and arranged for nurses. This was all on paper, but the skeleton was laid down, and the large examination schools selected as the hospital. The plans for the alterations had been prepared, and life had been kept in the organization by an annual meeting. And so it turned out that within two weeks after the order for mobilization, Colonel Ranking, the administrator, had the schools ready for a hospital of nearly 500 beds, and a staff organized. The same has taken place in the other centers throughout the country, so that ample accommodation was provided, both for the sick among the territorials and Kitchener's new army, and for the wounded who soon began gradually to be sent back from the front. At present in Oxford there are nearly 1,000 beds available, as the town hall and the workhouse have been added and about eighty beds provided at the Radcliffe Infirmary. Up to date, between 2,000 and 3,000 wounded have been treated.

Private enterprise has also furnished excellent hospitals. The Committee of American Ladies in London has opened the American Hospital at Paignton, near Torquay in Devonshire, in the splendid house handed over to it by Mr. Paris Singer. There are 200 beds, and an additional sixty beds will be provided. The work is in charge of Dr. Beal of the American Red Cross.

The Canadians resident in London have opened a hospital near Shorncliffe, which is in charge of Dr. Armour and myself, in a house provided by Sir Arthur and Lady Markham. The resident surgeons are Dr. Wallis of Guelph and Dr. Stewart of Calgary. Miss Macmahon of Toronto, formerly one of the assistant superintendents at the Johns Hopkins Hospital, is in charge with a group of Canadian nurses.

From the base hospital in Oxford the convalescents flow over to Blenheim Palace, the library of which has been converted into a ward for sixty patients, and to Lady Wantage's at Lochinge, and to Mr. Mortimer Singer's at Milton Hill. The latter is one of the most ideal hospitals I have ever seen. Mr. and Mrs. Singer were about to move into their newly arranged house, but have converted it into a hospital for 150 beds, and are providing everything for the comfort of the soldiers.

In Cambridge, Birmingham, Bristol and London large hospitals have been opened, and many of the Metropolitan hospitals have set aside a certain number of beds, so that one may say that the accommodation throughout the country both as regards hospitals and convalescent homes is ample.

Altogether, the health of the troops in the training camps has been excellent, and, fortunately, until recently the weather has been good. Up to date there has been no typhoid to speak of. Inoculation is not compulsory, so that a number of us have been going about the camps lecturing to the men, the large majority of whom have readily submitted to inoculation. The country districts in England are singularly free from typhoid, so that there is not much risk of wide-spread epidemics in the camps, and in the British expeditionary forces there have been very few cases. There has only been one case at Paignton, and only four or five here. I saw a couple in the hospitals at Brighton. In these first four months of the war we may say that typhoid has played no part. Major Russell's recent figures of the results of inoculation in the American army have been of great value in convincing officers of the value of the procedure.

The outstanding medical feature of the campaign in France and Belgium is that wounded, not sick, are sent from the front. So far, disease has played a very small part and the troops have had wonderful health, in spite of the exposure in the trenches. The damage has been from the pointed bullet, the round shrapnel bullet, and from fragments of the shrapnel case, and the severity of the wounds caused are in this order. From the military point of view, the modern bullet is not a very effective agent. At the right spot it kills; but it may pass harmlessly through head, chest or abdomen, and may splinter a bone without causing sepsis. The orifices of entrance and exit are small, heal rapidly, and the high velocity appears to sterilize the tract. I have seen one case of bullet through the frontal lobes, four through the chest, and two through the abdomen without serious symptoms. The chest cases are of special interest, as one would not think it possible for a bullet to pass through pleura and lung without damage. At Paignton there have been three cases without pleurisy or hemothorax. In one the bullet entered the second right interspace, passed through the anterior mediastinum and the margin of the left lung and came out in the second interspace, about four inches from the left sternal border. Cough and hemoptysis followed, but the patient rapidly recovered. In another man the point of entrance was to the left of the nipple and the exit below the angle of the right scapula. He spat blood at first, but when I examined him about two weeks later there was no friction, flatness or effusion. A Belgian at Shorncliffe, wounded a week previously by a bullet through the right lung, had the same negative features. The patient in the next bed had hemothorax, with moderate fever, from a bullet which had passed through the right lung at the level of the fourth rib. When hemorrhage follows, there may be fever at first, though not necessarily, and if left alone, the symptoms subside, the clot organizes, the plasma is absorbed, and the affected side becomes immobile, with narrowed interspaces and even rapid contraction.

It would not seem possible that a bullet could go through the abdomen without doing any harm, but a Highlander at the base hospital, Oxford, had the wound of entrance about two inches to the left of the navel and the exit about three inches from the spine. He had had no abdominal symptoms, but had a bad shrapnel wound of the leg. In another man at Paignton the bullet entered from behind, and the roentgenogram showed it not far from the navel. No symptoms followed. The modern rifle bullet may leave a clear wound which quickly scabs over and heals rapidly. A Belgian student at Shorncliffe had a bullet through the bridge of the nose — fortunately a good-sized one — with little or no damage except a frontal sinusitis. The round shrapnel bullet does more harm, with a bigger orifice and a larger, and sometimes rugged, exit. This is an artillery war in which shrapnel does the damage, tearing flesh, breaking bones, and always causing jagged, irregular wounds. And here comes in the great tragedy — sepsis everywhere, unavoidable sepsis! The conditions on the battlefield have made it impossible always to give first aid, and within twelve and twenty-four hours the ragged open wounds have become infected from the clothing or the soil. The surgeons are back in the pre-Listerian days and have wards filled with septic wounds. I have seen sights that remind me of student days at the Montreal General Hospital when all the compound fractures suppurated, and we dressers really had to dress wounds. It may be possible to improve conditions, and already the transport of the wounded from the front has been hastened, and measures are being taken to provide simple antiseptics; but the wound of shell and shrapnel is a terrible affair, and infection is well-nigh inevitable. It is surprising what may be done in some of the worst cases. Among the first batch of German wounded admitted to the Oxford base hospital was a man with high fever, right hemiplegia and aphasia. He had a large wound of the skull on the left side. I saw him with Mr. Whitelocke, as meningitis was feared, but after the wound was freely opened and a part of a bullet and a bit of his cap were removed, the temperature fell, the paralysis cleared, and he has made a complete recovery. An interesting point is the extent of suppurating surface that may exist without fever so long as free drainage exists. It is, however, a slow tedious business, with a type of wound demanding much nursing and dressing. Two points then stand out prominently — the comparative mildness of the wounds of the high-velocity bullet, and the wide-spread prevalence of sepsis in the crusted and lacerated shrapnel wounds.

Two other infections have caused trouble. The fighting has been in highly cultivated districts where the tetanus bacillus thrives, so that many cases have developed. At first there was not sufficient antitoxin, but now it is given at the front as early as possible. There have been only two deaths here among seven cases. At Paignton two very severe cases recovered. The intrathecal method as warmly recommended by Park has been used. The other infection is more serious, an emphysematous wound gangrene, due to an anaerobic gas bacillus. It appears within the first four days of the injury and may prove rapidly fatal by sepsis. The emphysematous swelling, the spreading discoloration, gaseous discharge and terrible odor make the diagnosis easy. The phlegmon bacillus of Fränkel is a widely distributed organism, and infection probably comes from the soil.

There will be countless opportunities of studying lesions of the nervous system, particularly of the peripheral nerves. I have already seen several cases of severe neuritis of the type described in the monograph of Moorehouse, Mitchell and Keen, with great swelling. One patient at the American Hospital with a clean bullet wound high up on the inside of the arm has complete loss of power of the arm, with agonizing pain and great swelling. Later, it would be worth while for the government to concentrate these cases in one large hospital, as was done during the Civil War, and gave the authors just named their great opportunity. Perhaps the case that has interested me most was a paraplegia spastica cerebralis. The man, a private in the Lancashire Fusiliers, had a bullet wound at short range, which ploughed along the parting of his hair for about 3 inches, grooving the bone. It happened on September 13, and he was unconscious for a time, had loss of power in the legs and was carried into the cart. He gradually recovered the use of his legs, but has developed a spastic gait, with great increase in the reflexes. Another point of interest is the paralysis of the flexors of the feet, with some wasting. This makes the gait very remarkable, a combination of the spastic and steppage. No doubt here there was a bilateral hemorrhage, and an anatomic condition similar to that which occurs in Little's disease.

At the Beechborough Hospital there was a remarkable spurious aneurysm, in a Belgian shot through the right cheek; the bullet passed through the mouth, under the jaw beneath the skin of the neck, and was just below the left clavicle. The cervical triangle was filled with a pulsating mass, without thrill or bruit. It appeared to be a traumatic aneurysm, but Dr. Armour removed the bullet, relieving the tension, and the pulsation has gradually disappeared. It was probably hematoma with communicated pulsation. At Paignton there was an arteriovenous aneurysm of the left brachial which seemed doing very well at first, but then began to increase rapidly, so that Dr. Beal did an Antyllus operation.

Considering the distance that the wounded men have had to travel; from the front to the clearing hospital, then by ambulance train to the base hospitals, by ship to one of the ports, then by train or motor ambulance to the general hospitals—well termed a *via dolorosa*—their condition has been remarkable. The mortality has been everywhere very low.

I am sure your readers would like also to hear of the work which is being done to help our Belgian colleagues who have suffered so terribly. Within a week after the fall of Louvain one of the professors called and told such a sad story of their plight that we organized a university committee to offer hospitality to any who cared to accept, and my wife wrote at once to her friends in the United States asking for help. There are now sixteen Belgian professors here, with their families numbering nearly 100, for whom have been provided houses or lodgings, and who are given monthly grants for their support. The money for this has very largely come from our friends in the United States; and I would like here to express the indebtedness of the committee to Dr. J. William White of Philadelphia, and to Mrs. Futcher of Baltimore. The financial position has been greatly relieved by the kind offer of the Rockefeller Foundation to subsidize any science professors who wish to continue their work at English universities. The two most distinguished medical professors are Professor Denys, who is working in the laboratory here, and Professor Van Gehuchten in the Research Hospital at Cambridge, both from Louvain.

William Osler, Oxford, Dec. 4, 1914.

Sodium Chlorid in Bright's Disease

To the Editor:—Dr. Lowenburg's article in The Journal, Nov. 28, 1914, p. 1906, is of immense interest from the point of view of the effects of various mineral salts on metabolism, as well as of sodium chlorid in dropsy.

That sodium chlorid, taken into the circulation, will, under certain circumstances, cause water retention in the tissues (edema), I am fully convinced, but there may be, and there probably is, some other factor necessary for the production of that result. My opinion is that some etiologic factor is to be found in a peculiar condition of the tissues (such condition, in some degree, not unlike what we meet in chilblain cases), as well as in the pathologic condition of the kidneys. It is not generally known, perhaps, that potassium salts will counteract this water retention in the tissues by causing the sodium salts to be eliminated, and some articles of diet, such as potatoes, cereals, etc., which contain potassium in considerable quantities, will often prevent sodium chlorid from producing its characteristic effects on the tissues. Hence, probably one of the reasons for some contradictory results obtained by different clinicians owing to inattention to these details.

I have now in mind one particular case in point, which came under my observation in London, J. G., a man about 50, a plumber by trade, who had an attack of acute nephritis with albuminuria, general anasarca and other characteristic symptoms. The patient improved under treatment and resumed work in the spring of 1907. He felt tolerably well during the summer, but the case eventually ran into the chronic form, the condition of the patient becoming worse every winter through renewed attacks. He was admitted into the Middlesex Hospital during the winter of 1909-1910 and left little improved, to be sent shortly after to the Marylebone Infirmary. At that time he could walk fairly well, but had general edema and ascites. His condition, however, became gradually worse, notwithstanding the treatment he received and the continual use of Southey's tubes to reduce the dropsy, until during the last two months of the six which he remained in that institution, he was quite unable to walk owing to his size and weight from the dropsy. He could only move about in the corridors and in the yard with the use of a bath-chair which he wheeled with his hands. He thought that he would die if he remained there any longer, and he prevailed on his wife to take him out, although she had no other means to support him and herself than her daily labor at scrubbing. This was in the autumn of 1910. I was then asked to prescribe for him. On inquiry, he told me that his diet in the infirmary had consisted chiefly of salt fish and, having read at that time several articles on the effects of sodium chlorid in producing water retention in the tissues, I put him on a salt-free diet and on articles of food containing potash such as unsalted potatoes *ad libitum*, cereals and various vegetables. He also had milk and buttermilk, and was allowed the fat of bacon. The only medicine he had to take was the mistura alba (magnesium sulphate and magnesia) sufficient to keep his bowels in action, and occasional doses of potassium bicarbonate by the mouth. Before the end of three weeks he walked to my office unaided, a distance of more than half a mile, and told me he had lost over 6 inches around the waist, his legs and arms were much reduced in size and he felt much more comfortable. The urine was clearer and contained less albumin. In another month he began to do some work, and when I left London, in May, 1911, he was still able to work to earn his living. I heard of him a few months after I left and was told that he kept fairly well, but I have heard nothing more since.

I feel convinced that, in this instance, the continual aggravation of the dropsy was due to the ingestion of sodium chlorid from the salt fish of the food, and the rapid improvement of the symptoms to the sudden cutting off of the salt supply to the tissues, together with the elimination of sodium chlorid by the administration of potassium salts both as a medicine and in the diet.

It is not improbable, therefore, that the benefits obtained by the administration of Ringer's solution in these cases are due to the potassium contained in it and perhaps also to the calcium. I doubt that the sodium contained in Ringer's solution has any share in the benefits derived from its administration, except in so far as it may be converted, by the presence of potassium and calcium salts, into some other sodium salt having less power to produce water retention than the chlorid and thus be rendered more easy of elimination.

I am inclined to think also that chronic cases of dropsy offer a safer means of finally judging of the effect of sodium chlorid in producing edema than acute ones, because the latter present greater reactive and recuperative powers to overcome the effect of sodium chlorid, even if injurious, than the former. On the other hand, it must be borne in mind that when the elimination of the excessive sodium chlorid is prolonged to a degree of salt starvation of the tissues, which require sodium chlorid as a normal constituent, an opposite condition may be developed which might produce a nephritis of a special character.

Paul Z. Hebert, M.D., New York.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Alabama: Montgomery, Jan. 5, 1915. Chairman, Dr. W. H. Sanders, Montgomery.

Alaska: Juneau, Jan. 5, 1915. Sec., Dr. H. C. DeVighne, Juneau.

Arizona: Phoenix, Jan. 5-6, 1915. Sec., Dr. John Wix Thomas, 200 Nat'l Bank of Ariz. Bldg., Phoenix.

Illinois: Chicago, Jan. 13-15, 1915. Sec., Dr. C. St. Clair Drake, Springfield.

Indiana: Indianapolis, Jan. 12-14, 1915. Sec., Dr. W. T. Gott, State House, Indianapolis.

Iowa: Des Moines, Jan. 19-21. 1915. Sec., Dr. Guilford H. Sumner, Capitol Bldg., Des Moines.

Minnesota: Minneapolis, Jan. 5-8, 1915. Sec., Dr. Thomas McDavitt, 814 Lowry Bldg., St. Paul.

New Hampshire: Concord, December 29-30. Regent, Mr. H. C. Morrison, Concord.

New Mexico: Santa Fe, Jan. 11, 1915. Sec., Dr. W. E. Kaser, E. Las Vegas.

New York: Albany, Buffalo, New York, Syracuse, Jan. 26-29, 1915. Mr. H. H. Horner, Chief, Examination Division, State Education Bldg., Albany.

North Dakota: Grand Forks, Jan. 5, 1915. Sec., Dr. G. M. Williamson, Grand Forks.

Oklahoma: Oklahoma City, Jan. 12-14, 1915. Sec., Dr. John W. Duke, Guthrie.

Rhode Island: Providence, Jan. 7, 1915. Sec., Dr. Gardner T. Swarts, State House, Providence.

South Dakota: Pierre, Jan. 12, 1915. Sec. Dr. P. B. Jenkins, Waubay.

Utah: Salt Lake City, Jan. 4-5, 1915. Sec., Dr. G. F. Harding, 407 Templeton Bldg., Salt Lake City.

Vermont: Montpelier, Jan. 11-13, 1915. Sec., Dr. W. Scott Nay, Underhill.

Washington: Walla Walla, Jan. 5, 1915. Sec., Dr. C. N. Suttner, Baker Bldg., Walla Walla.

Wisconsin: Madison, Jan. 12-14, 1915. Sec., Dr. John M. Beffel, 3200 Clybourn St., Milwaukee.

Alaska July Report

Dr. Harry C. DeVighne, secretary of the Alaska Board of Medical Examiners, reports the written examination held at Juneau, July 7-8, 1914. The total number of subjects examined in was 12; total number of questions asked, 66; percentage required to pass, 75. The total number of candidates examined was 4, all of whom passed. The following colleges were represented:

PASSED College	Year Grad.	Per Cent.
Rush Medical College	(1912)	82
Albany Medical College	(1912)	77.7
Jefferson Medical College	(1910)	75.5
McGill University	(1897)	75

Rhode Island July Report

Dr. Gardner T. Swarts, secretary of the Rhode Island State Board of Health, reports the practical and written examination held at Providence, July 2-3, 1914. The total number of subjects examined in was 7; total number of questions asked, 70; percentage required to pass, 80. The total number of candidates examined was 14, of whom 10 passed and 4 failed. The following colleges were represented:

PASSED College	Year Grad.	Per Cent.
University of Illinois	(1914)	80.7
University of Maryland	(1914)	81.7
Harvard University	(1910)	91
Tufts College Medical School	(1912) 90, 92.6; (1914)	84.9
Coll. of P. and S. in the City of N. Y.	(1895) 80; (1906)	86.9
Columbia University	(1911) 84.4; (1914)	86.7
FAILED		
Boston University	(1914)	75.5
Tufts College Medical School	(1905)	63.5
Medico-Chirurgical College of Philadelphia	(1914)	74.5
Meharry Medical College	(1914)	66.5

Miscellany

Harrison Bill Becomes A Law

During the last three years frequent mention has been made in The Journal of the efforts of Congress to enact a law for the control of traffic in habit-forming drugs. (April 18, 1911, p. 1276; Aug. 2, 1913, p. 360; Jan. 24, 1914, p. 316.) As has been previously stated, two of the three measures known as the Harrison bills were enacted at the last session of Congress. These provided for the regulation of the manufacture and importation of drug preparations containing opium or coca leaves or any of their compounds. The third bill, intended to regulate the interstate traffic in habit-forming drugs, presented difficulties which were not encountered in the other two measures. Congress has no power to enact regulations for the sale of any article within state boundary lines; the question whether or not it has the power to restrict trade in an article solely for the public good is one on which there is a diversity of opinion. Consequently the method resorted to in most restrictive measures of this class is to draft them under the guise of revenue measures and to regulate them through the levying of a tax. This method was followed in the Esch phosphorus bill by which Congress imposed such a heavy revenue tax on matches made with white phosphorus as practically to prohibit their sale as an article of common use. The same plan has been resorted to in the third Harrison bill. This bill, after lengthy discussion and considerable amendment, finally passed the House, June 26, 1913, and the Senate, Aug. 11, 1914. The differences between the amendments made in the House and the Senate were so great as to make it necessary to refer the measure to a conference committee. On October 17, the conference committee reported an agreement and the amended measure was adopted by the Senate, the House adjourning without action. Following the reassembling of Congress, the report of the conference committee was again taken up and on Thursday, December 10, the bill was finally passed by the House. On account of the great amount of discussion which has been excited by the bill and its interest to and effect on the medical profession, an abstract of the law is given herewith.

Explanation of the Bill

The title of the act is "An Act to provide for the registration of, with collectors of internal revenue, and to impose a special tax upon all persons who produce, import, manufacture, compound, deal in, dispense, sell, distribute or give away, opium or coca leaves, their salts, derivatives or preparations and for other purposes."

Section 1 provides that after March 1, 1915, every person who performs any of the acts mentioned in the title shall register with the collector of internal revenue of the district his name and place of business and shall pay a special tax of one dollar a year. Employees of registered persons, officers of the United States government, lawfully engaged in purchasing the drugs named for the army, navy, public health service or government hospitals and prisons are exempt. Only registered persons shall be permitted to perform any of the acts mentioned in the title. The term "person" is expressly defined to include partnerships, associations, companies or corporations.

Section 2 provides that no person shall sell, barter, exchange or give away any of the drugs mentioned except on a written order on a form issued by the Commissioner of Internal Revenue and supplied only to registered persons. Such orders shall be issued in duplicate, the original to be preserved by the person filling the order and the duplicate to be preserved by the person issuing it, for a period of two years and kept so as to be accessible to inspection by any officer of the treasury department or of state, territorial district and municipal officers. The exemptions under this section were the subject of the most prolonged discussion. As the bill finally passed, it provides that this section shall not apply to the dispensing or distribution of any of the drugs named, to a patient, by a physician, dentist or veterinary surgeon registered under the act in the course of his professional practice, provided that the physician, dentist or veterinary surgeon shall keep a record of all such drugs dispensed or distributed, showing the amount, the date and the name and address of the patient, except such as may be dispensed or distributed to a patient on whom such physician, dentist or veterinary surgeon shall personally attend. This record is to be kept for a period of two years, subject to inspection. The sale of any of the drugs mentioned, on a written prescription issued by a physician, dentist or veterinary surgeon, is also exempt but the person filling the prescription is required to keep the prescriptions on file for a period of two years. The sale of drugs to foreign countries is exempt, subject to the regulations of the country importing them, as is also the sale of drugs to any properly authorized government officer or state, territorial, district, county or municipal official purchasing supplies for a public hospital or prison.

The commissioner of revenue is authorized to prepare suitable blanks to be sold to dealers, the price not to exceed one dollar per hundred and the name of the purchaser using the blank is to be written or stamped on it by the collector of internal revenue. No other persons are permitted to use the forms. Special provisions are made for the administration of the act in Porto Rico, the Philippine Islands and the Canal Zone.

Section 3 provides that all persons registered under the provisions of the act shall, whenever required to do so by the collector of the district, make a full and correct statement on oath of the quantity of the drugs he has received and the names of the person from whom he has received them.

Section 4 prohibits any except registered persons from shipping or delivering any of the drugs mentioned in interstate commerce. Common carriers and employees are exempt.

Section 5 provides that duplicate orders and prescriptions shall be open to the inspection of all authorized agents of the treasury department and officers of any state, territory or municipality. Certified copies of such statements can be secured on the payment of a suitable fee. No persons are permitted to disclose the information contained in the returns except in the matter designated above. Copies of the names of all persons listed in any district may be secured on payment of one dollar for each one hundred names.

Section 6 provides that the act shall not apply to preparations or remedies which do not contain more than 2 grains of opium or more than ¼ grain of morphin or more than ⅛ grain of heroin or more than 1 grain of codein to the fluidounce or, in the case of solid preparations, to the avoirdupois ounce or to preparations for external use only or to decocainized coca leaves or other preparations of coca leaves which do not contain cocain.

Section 7 provides that all existing laws for the collection of internal revenue taxes are to be applied to the special taxes imposed by this act.

Section 8 provides that the possession of any of the drugs mentioned on the part of any unregistered person shall be regarded as presumptive evidence of the violation of the law. Employees of registered persons, nurses under the supervision of registered physicians, physicians themselves registered under the act, proper officials, warehouse men holding possession of goods for registered persons and common carriers transporting such goods are exempt.

Section 9 provides a penalty of not more than $2,000 fine or imprisonment for not more than five years or both for violations of the act.

Section 10 authorizes the commissioner of internal revenue to appoint such persons as may be necessary to carry out the provisions of the act.

Section 11 appropriates $150,000 to make the act effective and Section 12 provides that this act shall not be regarded as modifying the national Food and Drugs Act or the act of 1909, prohibiting the importation of opium.

Medicolegal

Compulsory Vaccination Compatible with Compulsory School Attendance

(People vs. Ekerold (N. Y.), 105 N. E. R. 670)

The Court of Appeals of New York affirms a judgment holding a father liable for the penalty provided by the education law for a failure to cause his son to attend on instruction notwithstanding the father made the defense that he did not believe in vaccination and the school authorities had refused to allow the child to attend school without being vaccinated. The court says that the question which within certain limits was presented here was whether the statute and the by-laws of the board of education in New York City adopted under and in accordance with the statute requiring vaccination as a condition of attending the public schools were under ordinary conditions so unusual or oppressive that a parent should be allowed to make his unwillingness to comply therewith a basis for not sending his children to school, for that was what the position of the defendant amounted to. The court does not think that they were of such a character. Under this court's decision in Re Viemeister, 179 N. Y. 235, it must assume that the law requiring vaccination of children in the public schools is a proper one. The statute requiring vaccination was adopted in its present form in 1893. The provision requiring attendance on instruction was first adopted in 1894. It does not seem reasonable to assume that it was the legislative intention in passing both of these statutes relating to attendance at school to provide and have it come to pass that the unwillingness to comply with the one requiring vaccination might be turned into a good excuse for disobeying the other one concerning attendance. It does not require much spirit of prophecy to foresee what would follow a contrary construction of the statutes. So far as the evidence disclosed, the defendant's refusal to comply with the requirements of attendance at school was arbitrary and capricious, and as one read the record and argument of his counsel the impression somehow arose that he was more interested in asserting his right to refuse to comply with the law than he was actuated by the purpose of protecting his child from some possible or supposed injury. Moreover, the vaccination statute under consideration applies only to the public schools, while it is well known that there are schools of other kinds and classes which might have been attended by the defendant's child where attendance would not have been subject to the condition which he urged as an excuse for his failure to send his child to school. It might or it might not be that that would entail expense, and even if it did it would not be sufficient to excuse the position and situation of the defendant. We are made well aware at the present day that the government in the exercise of its police powers does impose many regulations which involve trouble and expense, and such trouble and expense have not been regarded as an excuse for non-compliance.

Marriage of Drugged Physician to Nurse Annulled

(Waughop vs. Waughop (Wash.), 143 Pac. R. 444)

The Supreme Court of Washington affirms a judgment annulling the marriage in this case of a physician to a nurse, on account of the mental incapacity of the plaintiff at the time the marriage ceremony was performed. The court says that he was 46 years of age, and she 30 years of age. He had been for many years afflicted with insomnia, and had at times taken drugs in large quantities to overcome it. His mother, to whom he was greatly devoted, had been ill for some time, and he had been her physician and nurse. On Jan. 26, 1913, her condition was so alarming as to cause him great mental worry. Prior to that date he had casually met the defendant two or three times. On and after that date she visited his home daily, and after a day or two kept him at her sanitarium at night and gave him drugs and hot baths, as she said, to produce sleep. She claimed that they became engaged about January 30. He said that he had no recollection of either a courtship or engagement. She kept him under her control until February 4. On the forenoon of that day they applied for a marriage license, which the auditor, at the suggestion of the plaintiff's friends, refused to issue. In the afternoon they met at the home of his pastor, where the plaintiff was examined by two physicians who agreed that he was not then mentally competent to enter into the marriage relation, owing to excessive use of drugs. But despite the advice of the physicians, the advice and protest of the pastor, and the earnest protest of the plaintiff's relatives, they procured a license at 11:30 that night and were married at midnight. They lived together at the sanitarium conducted by the defendant from February 4 until February 12, when the plaintiff left the defendant, and on the next day brought this action to annul the marriage. The court thinks that it was correctly decided that the plaintiff was mentally incompetent at the time of the marriage, and that the marriage was not validated by consummation or ratification. The law presumes sanity rather than insanity, and competency rather than incompetency. It follows that one who asserts his incompetency to enter into a contract, whether it be a contract of marriage or one of another nature, must establish his incompetency at the time the contract was entered into by clear and convincing evidence. It is equally well settled that, where one is induced to make a contract by the artifice or fraud of the other party to the contract, less evidence will suffice to annul it. If the plaintiff's incapacity was such that he was incapable of understanding the nature of the contract, incapable of understanding the obligations assumed by the marriage, or if he was in a state of mental bewilderment to the extent that he yielded without demur to the suggestion of the defendant and she procured the marriage to be entered into, he had a right to secure its annulment, unless he consummated or ratified it after his competency was restored, which he did not do.

Manslaughter in Failure to Provide for Child

(State vs. Staples (Minn.), 148 N. W. R. 283)

The Supreme Court of Minnesota holds that a parent who by culpable negligence fails to provide care, nurture, sustenance, and medical assistance to a child wholly incapable of supplying its own wants, and so causes its death, is guilty of manslaughter in the second degree, under the statute of that state which provides that the offense of manslaughter in the second degree is committed by the killing of a human being, *when done without a design to effect death*, "by any act, procurement, or culpable negligence . . . which . . . does not constitute the crime of murder in the first degree, nor manslaughter in the first degree." The allegations were sufficient in an indictment which charged that the defendant became the mother of a male child, that after its birth and on the same day she wilfully made an assault on said child, and by acts, procurements, and culpable negligence she did wilfully neglect to provide care, nurture, sustenance, and medical assistance and aid to preserve its life, but wholly neglected it, and that in consequence thereof the life of said child was shortened and it did languish and die, etc.

What Constitute Insane Delusions

(Coffey et al. vs. Miller et al. (Ky.), 169 S. W. R. 852)

The Court of Appeals of Kentucky says, in this will-contest case, that an insane delusion is an idea or belief which springs spontaneously from a diseased or perverted mind without reason or without foundation in fact. It is distinguishable from a belief which is founded on prejudice or aversion, no matter how unreasonable or unfounded the prejudice or aversion may be. If it is the product of a reasoning mind, no matter how slight the evidence on which it is based, it cannot be classed as an insane delusion. In everyday life men of the strongest minds, being in possession of the same facts, reach different conclusions. Here the maker of the will, being presumably in possession of at least as much knowledge about certain occurrences as his relatives and neighbors, reached a different conclusion as to who were responsible for them, and the fact that he reached a different conclusion from most of his relatives and neighbors did not make his belief an insane delusion.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

December, VIII, No. 6, pp. 385-488

1 *Infantile Scurvy: The Blood, Blood-Vessels and the Diet. A. F. Hess and M. Fish, New York.
2 *Experimentally Produced Internal Hydrocephalus. W. E. Dandy and K. D. Blackfan, Baltimore.

1. **Infantile Scurvy.**—A study of the cause of the bleeding in infantile scurvy including a consideration of the clotting-power of the blood, forms the nucleus of the investigation made by Hess and Fish. For the coagulation tests blood was aspirated directly from the blood-vessels and oxalated. This plasma showed a *slight diminution in clotting-power.* This defect did not seem, however, to be the result of an insufficiency of calcium. The antithrombin was not increased. Small amounts of blood were also obtained by puncture of the finger. Examinations of this blood revealed a normal number of blood platelets. In other respects the picture was that of a simple secondary anemia, except that the hemoglobin was diminished out of proportion to the red blood-cells. A marked regeneration of these cells during convalescence, leading to a polycythemia, was also noticed.

These various departures from the norm according to the authors are insufficient to account for the hemorrhages associated with the disease. The integrity of the blood-vessels was therefore investigated. The vessels of normal infants were found to withstand, without apparent disturbance, 90 degrees of pressure for three minutes, whereas the vessels of infants suffering from scurvy gave way under this pressure. Numerous petechial hemorrhages of the skin or mucous membranes were frequently noted as one of the earliest signs of the disease. The well-known "exudative diathesis" of Czerny was found definitely to predispose to the development of scurvy.

Several cases of scurvy developed in infants who were being fed on milk which was pasteurized to 145 F. for thirty minutes. They were cured by receiving fruit-juices or raw milk. Orange-juice was found not to lose its efficacy as the result of being boiled for ten minutes. The juice of the peel was successfully substituted as an antiscorbutic for the juice of the orange. Potato proved to be an excellent antiscorbutic. It is suggested that it be added to pasteurized milk as potato-water instead of the barley-water which is now commonly used as a diluent. In this way the necessity will be obviated of giving orange-juice. Cod-liver oil or olive oil, although given for weeks, did not prevent the development of scurvy.

2. **Internal Hydrocephalus.**—An internal hydrocephalus was experimentally produced by Dandy and Blackfan in dogs by placing an obstruction in the aqueduct of Sylvius. It was made evident that the cerebrospinal fluid is formed in the ventricles faster than it can be absorbed, and that the aqueduct of Sylvius is essential for its escape. An internal hydrocephalus resulted from placing an obstruction in the aqueduct of Sylvius in spite of the extirpation of the choroid plexus of both lateral ventricles. An internal hydrocephalus may also result from an experimental ligation of the vena Galena magna near its origin; when the ligature is more distally placed or when the sinus rectus alone is ligated, an internal hydrocephalus does not result, owing to the efficient venous collateral circulation. Cerebrospinal fluid is derived mainly from the choroid plexuses, probably both by filtration and by secretion.

An increase of cerebrospinal fluid is caused by general venous congestion as demonstrated by temporary jugular compression. This increase of fluid ceases when the congestion is relieved by the collateral circulation. Drugs and glandular extracts produce but slight change in the rapidity of formation of cerebrospinal fluid. Pilocarpin produced a slight increase. There is a rapid constant formation and absorption of cerebrospinal fluid. A new supply is formed and absorbed at least every four to six hours. Cerebrospinal fluid is absorbed directly into the blood from the entire subarachnoid space. It is a diffuse process. There is practically no absorption from the ventricles.

The maintenance of an equilibrium between the formation and the absorption of cerebrospinal fluid necessitates a communication between the ventricles and the subarachnoid space. Communication is solely by the foramina of Magendie and Luschka. After the introduction of phenolsulphonephthalein into the subarachnoid space it soon appears in the lateral ventricles. There are therefore no valves at these openings. If an obstruction exists at the aqueduct of Sylvius, phenolsulphonephthalein does not appear in the spinal fluid. The so-called foramina of Mierzejewsky and Bichat therefore do not exist.

In seven patients with internal hydrocephalus lack of communication was demonstrated clinically. In each of these seven cases there was practically no absorption from the ventricles, while the subarachnoid absorption was high. The internal hydrocephalus, therefore, resulted because the passage of fluid from the ventricles into the subarachnoid space was prevented. Four cases of internal hydrocephalus in which there was communication between the ventricles and the subarachnoid space were studied. In these cases there was a low subarachnoid absorption. Meningitis was the cause of the hydrocephalus in two patients with the obstructive type and two with the communicating type of hydrocephalus. The probable cause of internal hydrocephalus following the excision of a meningocele is the limitation of absorbing surface and consequent diminution in the absorption of cerebrospinal fluid.

The authors point out that surgical treatment differs according to the variety of internal hydrocephalus. In the obstructive type the obstruction must be removed. In the communicating type it is necessary to increase the area for the absorption of fluid.

Annals of Surgery, Philadelphia

December, LX, No. 6, pp. 665-818

3 *Biliary Surgery. J. F. Erdmann, New York.
4 *Case of Retention Cysts of Pancreas. J. Speese, Philadelphia.
5 Cystic Lymphangioma of Great Omentum. Report of Case. G. W. Outerbridge, Philadelphia.
6 Priapism; Report of Case and Study of Literature. F. Hinman, Baltimore.
7 *Rupture of Bladder. J. B. Clark, New York.
8 *Operative Treatment of Acute Epididymitis. D. O. Smith and B. H. Frayser, Ancon, C. Z.
9 Hydronephrosis. G. D. Stewart and W. H. Barber, New York.
10 Pyelography in Diagnosis of Traumatic Injury of Kidney. Report of Three Cases. W. H. Luckett and L. Friedman, New York.
11 Congenital Malformation of Posterior Urethra. O. S. Lowsley, New York.
12 Circulatory and Trophic Disturbances of Extremities. H. N. Collins, New York.
13 Cinematoplastic Amputations. Report of Two Cases. A. P. C. Ashhurst, Philadelphia.

3. **Biliary Surgery.**—An analysis of 270 cases operated on within a period of fifty-one months with 13 deaths is presented by Erdmann. His records show 54 cases of acute cholecystitis; 34 cases of gangrenous cholecystitis, and 115 cases of cholecystitis not otherwise classified—this series included all varieties, from non-inflammatory to hydrops. There were 6 cases of perforated cholecystitis; 6 non-calculous; 4 malignant, and 8 cases of hydrops; cholangeitis 23 cases. In addition, acute hemorrhagic pancreatitis, with suppuration or sloughing, was observed six times. The operations recorded were as follows: Cholecystostomy, 125 cases, with 5 deaths. Cholecystectomy, 96 cases, with 4 deaths. Choledochotomy and transduodenal choledochotomy, 5 cases in all with 2 deaths. Cholecystostomy, with choledochotomy, 17 cases, with one death. Cholecystectomy with choledochotomy, 27 cases, with one death. Cholecystotomy with and without combined operations on the duct, 142 cases with 6 deaths. Cholecystectomy, with and without combined operations on the ducts 123 cases with 5 deaths.

4. **Retention Cysts of Pancreas.**—Speese's patient, a male aged 59, noted a feeling of discomfort in the epigastrium six years ago, and at times suffered from pain which radiated from the epigastrium to the lower dorsal region. Coincident with the discomfort, he experienced a sensation of pulsation in the upper portion of the abdomen, and several months ago was able to palpate a mass in the midline above the umbilicus, in the situation in which the pulsation was present. The mass would disappear for a time, then reappear, and of late has been present only in the standing posture. He has lost about six pounds in weight and has had several attacks of jaundice.

Physical examination showed in the epigastrium a pulsating mass which seemed to blend with the abdominal aorta. There was no tenderness or rigidity. Gastric analysis: Free HCl, 0; total acidity, 20; trace of lactic acid; occult blood, 0. Microscopic examination showed much mucus, starch granules and a few Oppler-Boas bacilli. Urine examination negative. Blood: Hemoglobin, 60; red blood-cells, 3,800,000; white blood-cells, 9,900.

At operation the stomach, duodenum and gall-bladder were found to be normal. In the folds of the gastrohepatic omentum a cystic tumor was found, the contour was irregular and the mass was about the size of a large peach. On the posterior aspect it seemed to be in relation with the vena cava and adherent to the head of the pancreas, so that in removing it a thin layer of pancreatic tissue was carried away with the tumor. The rent left in the gastrohepatic omentum was closed with a purse-string suture, leaving a small opening for a drainage tube. The patient made an uninterrupted recovery and was discharged cured. The tumor was composed of numerous cysts, the largest of which measured 2 cm. in diameter, the lining is smooth, and the contents consist of a cloudy fluid. In the center of the tumor, and surrounded by the multiple cysts, is a dense mass of whitish tissue which has the consistency of cartilage and contains several points of calcification.

7. **Rupture of Bladder.**—A case of intraperitoneal rupture of the bladder is reported by Clark which was not operated on until twenty-four hours after the rupture. The rupture of an apparently healthy bladder occurred without any sign of history of direct injury to the organ. After a day of heavy drinking, the patient slipped and fell down four or five steps in a sitting posture. He was immediately nauseated and vomited the contents of his stomach. He then started to walk home, twenty blocks away, and though seized with severe abdominal pain, he was able to reach his home, undress and go to bed. After a sleepless night, due to continued abdominal distress, he rose dressed about noon and went to a hospital.

The patient was prepared for operation. The usual suprapubic exposure showed a bladder extraperitoneally intact. The abdominal cavity being opened, a considerable quantity of urine and blood-clots were mopped out. A jagged transverse rent in the roof of the bladder, easily admitting three fingers, was found. The rents were closed by three layers of catgut sutures, placed successively through mucous membrane, muscular and peritoneal coats. The abdominal cavity was then closed in the usual way, with a cigarette drain and a catheter retained in the bladder. The patient sustained practically no shock from the operation and the postoperative course was uneventful. The retention catheter was removed after eight days and the patient was catheterized for a period of three or four days after which he was able to pass his urine easily. He was out of bed on the fourteenth day, and on the nineteenth day after operation, he seemed perfectly well and strong.

8. **Operative Treatment of Acute Epididymitis.**—Smith and Frayser are of opinion that in acute epididymitis epididymotomy is the rational thing to do because it shortens the duration of the disease; relieves the severe, weakening, sickening pain at once, causes the temperature to fall and induration to disappear rapidly.

California State Journal of Medicine, San Francisco

December, XII, No. 12, pp. 479-520

14 *Case of Primary Sarcoma of Stomach Treated by Partial Gastrectomy. T. W. Huntington, San Francisco.
15 Bone Splinting in Vertebral Tuberculosis. H. M. Sherman and G. J. McChesney, San Francisco.

16 Infantile and Juvenile Tabes. H. Barkan, San Francisco.
17 Feeding in the First Month of Life. A. Brown, San Francisco.
18 Centralization of Public Health Administration. J. N. Force, Berkeley.
19 Points of Interest in Technic of Gastro-Enterostomy. P. S. Campiche, San Francisco.
20 Does a Relationship Exist Between Tuberculosis of Epididymis and Tuberculosis of Kidney? R. L. Rigdon, San Francisco.
21 Report of Two Cases of Hernia. J. J. A. Van Kaathoven, Los Angeles.
22 Mendelian Law and Its Relation to Inherited Conditions of the Eye. D. F. Church, Redlands.
23 Conservative Amputations of Lower Extremities. C. E. Phillips, Los Angeles.
24 *Case of Abdominal Pregnancy. W. Himmelsbach, Watsonville.*

14. **Primary Sarcoma of Stomach Treated by Partial Gastrectomy.**—Huntington's patient was a woman, aged 67. The main trouble seemed to have originated within a comparatively short interval extending over a period of six months, during which time her symptoms were not especially distressing. There was never any vomiting of food or evidences of hemorrhage in the stools. She suffered very little pain and only moderate distress, after the ingestion of solid food. Her appetite was fairly well maintained and her physical condition was such as not to attract attention, save in a general way. There was a notable drop in the patient's strength and vigor.

The feature of the case which seemed of special significance was the existence of tenderness on pressure at or near the pyloric region. This was constant, and on the increase during the past two months; pyloric insufficiency existed only in a comparatively moderate degree. There was, also, a slight loss of weight, six pounds in six months. The abdomen was opened through the inner border of the right rectus. On the stomach side of the pylorus there was a rounded mass about the size of a cherry lying apparently in the submucous and muscular coat of the viscus. Between the examining fingers, the peritoneum being tightly drawn over the mass, it presented a whitish uniformly globular tumor. It was distinctly hard and resistant. The lumen of the pylorus was definitely narrowed.

About one-fifth of the stomach and fully an inch of the duodenum were included in the resection. The divided ends of the stomach wall and the duodenum were enfolded and the suture lines reinforced. A formal posterior gastrojejunostomy was then completed. Patient left the hospital in splendid condition at the end of ten days. Section showed tumor to consist of very numerous, round, spindle-cells. Diagnosis: Fibrosarcoma of the stomach.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

November 28, II, No. 2813, pp. 909-952

1 War and Typhoid. W. Osler.
2 *Report on Gas Gangrene. A. A. Bowlby and S. Rowland.
3 Injuries to Bowel from Shell and Bullet Wounds. P. Lockhart-Mummery.
4 Leeches. A. E. Shipley.

2. **Report on Gas Gangrene.**—The following conclusions are drawn by Bowlby and Rowland from their observations of this condition. All tight bandages and especially those applied at the first field dressing should be avoided. Shell wounds are so often followed by so much interstitial hemorrhage that the part swells and the bandage rapidly becomes tighter and interferes with the circulation. Consequently many bandages require to be cut within a few hours of their application. In many cases the tension requires to be relieved by incisions and drainage, and the opportunity should be taken to wash the wounds thoroughly with an antiseptic. Hydrogen peroxid is one of the best. Great care should be taken to remove portions of clothing as these contain the infective agent. Shattered fragments of bone and pieces of shell or gravel should be taken out. Amputation may often be successfully performed through tissues made emphysematous by gas but not yet gangrenous.

The group of anaerobes causing gangrene are spore-bearers, and spores (especially of this group of anaerobes) are especially difficult to kill by any antiseptic solution or even by boiling. Consequently, in order to sterilize instruments and other things that have been infected, other measures are required. (a) Destruction of blankets and clothing soaked by the discharge. (b) Heating in an autoclave at a temperature of 120 centigrade. (c) Boiling for an hour in a solution of 1 in 20 phenol or lysol (1 in 10). The mud on the clothes of wounded soldiers is almost certainly infected, and care should be exercised to see that the area in which operations or dressing of wounds are performed should be kept free from possible contamination from such a source. When possible, it is advisable to isolate patients under treatment in hospitals, and this is all the more necessary on account of the bad smell which is inseparable from the condition.

Lancet, London

November 28, II, No. 4761, pp. 1233-1286

5 Patient and Disease. D. Duckworth.
6 *Myeloid Sarcoma; Analysis of Fifty Cases. M. J. Stewart.
7 *Heart-Block in Acute Rheumatic Carditis. A. E. Naish and A. M. Kennedy.
8 Localization of Bullets and Shrapnel. W. Overend.

6. **Myeloid Sarcoma.**—In every one of the fifty cases recorded by Stewart the diagnosis was confirmed or made by microscopic examination of the tumor. Of the 50 cases, 35 are from the jaws, 11 from the long bones, and 4 from other situations. The situation in 26 out of the 35 jaw cases was: Upper jaw, 12; lower jaw, 13; both jaws, 1. The incidence in other bones was: Femur, 6 (4 lower end and 2 upper end); humerus, 3 (2 lower end and 1 upper end); metacarpal, 3; tibia, upper end, 1; radius, upper end, 1; and coccyx, 1.

Stewart concludes from analysis of these cases that myeloid sarcoma is locally malignant only and does not undergo dissemination. It is to be clearly distinguished, both clinically and pathologically, from malignant giant-cell sarcoma, in which death with visceral dissemination is the rule, even after the most radical operative treatment.

The histologic diagnosis is based on the morphologic characters of the giant-cells, especially as regards their nuclei. In myeloid sarcoma the latter are numerous, uniform, small, and without mitoses; in malignant giant-cell sarcoma they are few, sometimes single, irregular, and often very large, while mitotic figures are frequent. Stewart makes a strong plea for the conservative treatment of myeloid sarcoma. He advocates thorough curettage as the operation of choice in the first instance in suitable cases; failing this, a local resection of the growth. Amputation should be the last resort, and only after the failure of less radical measures. An accurate histologic investigation of the tumor is in all cases essential.

7. **Heart-Block in Acute Rheumatic Carditis.**—Naish and Kennedy report two cases of heart-block which occurred in the course of acute rheumatic carditis in children and were associated with similar histologic changes in the cardiac musculature.

Berliner klinische Wochenschrift

November 9, LI, No. 45, pp. 1781-1804

9 Gunshot Wounds of the Stomach. (*Perforierende Schussverletzungen des Magens.*) Adler.
10 *Tetanus. H. Mühsam.
11 Gunshot Wound of Spinal Cord. (Rückenmarksverletzung.) E. Froehlich.
12 *Treatment of War Wounds of the Eyes. (*Die Kriegschirurgie des Sehorgans.*) K. Steindorff.
13 *The Symptoms of *Brown-Séquard's Paralysis.* M. Bernhardt.
14 *Renal Diabetes. C. D. de Langen.
15 Factors in Hernia of the Diaphragm. (Zur Entstehung der Hernia diaphragmatica und Dilatation des Zwerchfells.) F. *Fidler.*

10. **Tetanus.**—Mühsam remarks that other germs which get into the wound with the tetanus bacilli use up the oxygen and thus favor the anaerobic proliferation of the tetanus bacilli. Another favoring factor is the demoralization of the circulation in the injured tissues in the depths of the wound. The toxins generated may diffuse through the devitalized tissue into sound tissue until they reach a nerve. The practical

inference is to clear out all devitalized tissue and saprophytes, etc., liable to use up the oxygen, and, last, but not least, to flood the depths of the wound with oxygen in addition to the routine treatment with antitetanus serum and sedatives as indicated. Hydrogen dioxid is another important aid in treatment. It may be necessary to make a breach in the teeth, when the jaws are locked together, so that the patient can expectorate. From lack of any gap in the teeth he lost a patient from aspiration pneumonia as the man was unable to spit although his condition otherwise was not so serious. Local warmth sometimes aids in the subsidence of the trismus.

12. **Injuries of the Eyes in War.**—Steindorff cites the statistics in this line from the wars of the last seventy years and discusses the management of cases of the kind.

13. **Brown-Séquard's Paralysis.**—The patient whose case is described is a man of 45 who has been under observation for six years. The disturbances have never been severe enough to interfere with his work as a railroad employe. The Wassermann test was positive and the motor symptoms improved under specific treatment but the sensory disturbances were not influenced. The syphilitic nature of the trouble is confirmed by symptoms which indicate three distinct foci in the left spinal cord, although there was no history of known syphilis and the man's wife and two children are healthy.

14. **Renal Diabetes.**—This article has already been reviewed in The Journal, Feb. 28, 1914, p. 739.

Deutsche medizinische Wochenschrift, Berlin

November 5, XL, No. 45, pp. 1929-1952

16 Sepsis from Wounds in War. (Wundinfektionskrankheiten.) G. Jochmann.
17 Three Cases of Wounds from Alleged Dumdum Bullets. (Bis zum 20. Oktober behandelte Dum-Dum-Verletzungen aus dem gegenwartigen Kriege.) W. Pöppelmann.
18 Diarrhea of Gastric Origin. (Ueber gastrogene Diarrhoen und das Vorkommen von Achylia pancreatica bei Achylia gastrica.) A. Bittorf.
19 The State and the Food Supply. (Der Staat und die Volksernährung.) M. Rubner.
20 Diagnosis of Typhoid and Cholera in the Field Laboratory. M. Christian.

Medizinische Klinik, Berlin

November 8, X, No. 45, pp. 1655-1678

21 Prophylaxis and Treatment of Bubonic Plague. (Pest.) R. Poch.
22 War Wounds of Peripheral Nerves. (Kriegsverletzungen des peripherischen Nervensystems.) O. Hezel.
23 *Nature and Treatment of Psoriasis. (Schuppenflechte.) B. Spiethoff.
24 Connection between Instability of the Vagus System and Seasickness. (Ueber die Korrelation der Vagotonie zur Seekrankheit.) B. O. Pribram.

23. **Psoriasis.**—Spiethoff discusses the various theories that have been advanced in regard to the origin of psoriasis, but does not think that any of them have conclusive weight. An inherited tendency seems evident in about 5 or 6 per cent. of the cases, and anything causing internal disturbances is liable to aggravate the condition or bring on attacks, especially digestive disturbances, abuse of coffee, tobacco or alcohol, a diet too rich in albumin, or constitutional disease. One of his most inveterate cases of psoriasis was in a man with exophthalmic goiter. In another case so severe that the scalp and ears were covered with crusts, tests of the stomach functioning revealed anacidity. When diabetes and glycosuria can be excluded, benefit is often derived from a vegetarian diet. As to symptomatic measures, he does not rank any very high except Roentgen exposures. These are peculiarly effectual in the old cases with tough infiltrations on the limbs and head. Among the internal remedies he thinks that arsenic seems to be the only one that is worth mentioning; he has never seen any effect from salvarsan. Patients with severe psoriasis, taking a course of salvarsan for syphilis, did not find that the medication had any influence on the psoriasis. Serotherapy is inconstant in its action, but he extols the benefit from venesection in cases with much itching. Withdrawing from 50 to 100 c.c. of blood, repeating this two days later, generally put an end to the itching in his experience with it.

Münchener medizinische Wochenschrift, Munich

November 10, LXI, No. 45, pp. 2197-2232

25 *Localization of Foreign Bodies. (Fremdkörperlokalisation.) G. Holzknecht.
26 Technic for Serodiagnosis. (Zur Methodik des Abderhaldenschen Dialysierverfahrens.) H. Nieden.
27 *Varnish in Treatment of Wounds. (Welche Harzlösungen sind für Verbandzwecke geeignet?) K. Dieterich.
28 *The Work at a Base Hospital. (Der Betrieb eines Reservelazarettes.) H. Schridde.
29 Physical Bases of Radium Therapy. Kohlrausch. Commenced in No. 44.
30 *Gaseous Gangrene and Phlegmons. (Gasgangrän: einige Fälle von Gasphlegmonen.) E. Fraenkel and K. Franke.
31 Gunshot Wounds of the Spinal Cord. (Schussverletzungen des Rückenmarks.) N. Gulcke.
32 Foot-Pump Apparatus for Local Anesthesia. (Pneumatische Lokalanästhesie.) F. Kuhn.
33 *Danger of Anaphylaxis from Antitetanus Serum. (Die Anaphylaxiegefahr bei der Serumbehandlung des Tetanus.) L. Simon.
34 *Intraspinal Magnesium Sulphate Treatment of Tetanus; Eight Cases. K. W. Eunike.
35 *Antitetanus Serum Plus Large Doses of Chloral in Tetanus. (Zur Behandlung des Wundstarrkrampfs.) A. Angerer.
36 Shell Wounds of the Bladder. (Zwei Blasenverletzungen durch Schrapnellkugeln.) Pitzner. (Spontaner Abgang eines in die Harnblase gedrungenen Granatsplitters.) H. Nobiling.
37 Typhus and Relapsing Fever. (Ueber Fleckfieber und Rückfallfieber.) Mühlens. Commenced in No. 44.

25. **Localization of Foreign Bodies with the Roentgen Rays.**—Holzknecht gives an illustrated description of the various technics best adapted to locate foreign bodies in the skull, limbs and trunk. He emphasizes the importance of heeding the geometrical principles involved.

27. **Varnish for Dressing Wounds.**—In the Balkan wars and in the present war extensive use has been made of a varnish applied around the wound as this fastens in all germs and the wound is thus saved from contamination from the environment. Another advantage is that the dressing sticks to the varnish and is thus held better in place. Opinions differ as to the value of varnish treatment, some lauding it and others finding it inconvenient. Dieterich says that if a varnish is to be used, dammar, colophonium and turpentine are just as good for the purpose as the more expensive resins, and they can be dissolved in benzol instead of chloroform, the cost thus being only a small fraction of that of ordinary varnish. He gives some formulas for a good inexpensive varnish of a neutral reaction, and thus non-irritating. One formula calls for 250 gm. dammar; 30 gm. castor oil or linseed oil; 700 gm. benzol; 50 gm. sodium bicarbonate and 5 drops of amyl acetate (*Birnenäther*). These ingredients are shaken up together repeatedly as they are kept at room-temperature for several days. Then the mixture is filtered, adding a little more of the solvent if any has evaporated. A few drops of the amyl acetate are then added to the mixture, when it is ready for use. Another formula is a mixture of 300 gm. light colophony; 20 gm. Venetian turpentine; 10 gm. castor or linseed oil; 700 gm. benzol, 60 gm. sodium bicarbonate and a few drops of amyl acetate.

28. **The Base Hospital.**—Schridde mentions a number of practical points he has learned in his service at Dortmund in which large numbers of sick and wounded soldiers have been received. With a special ward for skin and venereal diseases the men are cured much quicker than in the mixed wards and his special ward is always crowded. Experience has also confirmed the advantages of keeping the military and the civilian sick separate. He states that prisoners are treated in every respect the same as the other inmates of the hospital except that they are not given reading matter, games, tobacco or dainties sent in from outside; they are not allowed to leave their ward, and no visits are permitted from outsiders. The hospital also takes women in training for Red Cross nursing, rejecting all those who do not seem strong and well or who have much disturbance at menstruation.

30. **Gaseous Gangrene.**—Fraenkel says that when there is no superposed infection the gaseous gangrene is not accompanied by suppuration. It is in fact a malignant emphysema. It can be differentiated from malignant edema in twelve or eighteen hours by inoculation of animals, the guinea-pig for

gas-gangrene, the rabbit for malignant edema, the rabbit being apparently completely refractory to the germ of gas-gangrene. Staining a smear with a diluted solution of carbol-fuchsin will show the gas bacillus with its rounded ends, instead of the beveled ends of the anthrax bacillus, and its short thick shape distinguishes it from the slender bacillus of malignant edema. The bacillus of gas-gangrene is strictly anaerobic, and consequently treatment must aim to admit air freely to check its growth. Ample incisions and playing a jet of oxygen on the tissues, with extensive use of hydrogen peroxid, are the main reliance. If these fail, amputation may save the rest of the body. No serotherapy or internal measures have yet proved of use, but the patient's strength must be kept up.

Franke relates that in his six cases of gaseous phlegmon it developed several days after a shell wound in the leg. The onset was sudden and stormy, the limb became painful and discolored, the symptoms and aspect resembling those of acute and rapidly progressing venous thrombosis except for the accumulating gas. The zone of demarcation was more painful on pressure than the peripheral region. Amputation was the only recourse in four cases, and it came in time in two. In the two others the trunk was already involved and the patients seemed doomed, but one was saved by exarticulation of the thigh; the emphysema in abdomen and chest then promptly subsided. The other patient was febrile and did not survive the operation.

33. **Anaphylaxis from Antitetanus Serum.**—Simon had four rapidly fatal cases of tetanus among the 700 wounded in his service during four weeks. Then came a series of four mild cases with recovery under antitetanus serum treatment. In two other cases tetanus developed soon after a shell injury of the upper arm. One man was given 200 antitetanus serum units, both intravenous and intraspinal, repeated the next day and followed daily with 100 units intravenously after the arm had been amputated. He was progressing favorably until the intravenous injection the fourteenth day was followed by signs of severe anaphylaxis. Under stimulants in an hour he recuperated. The next day he developed an exanthem. No further antitoxin was given and in a few days all traces of the tetanus had vanished. In the other case there was some twitching in the arm and face but as this subsided after intravenous injection of 300 units, the assumption of tetanus seemed to have been erroneous. Thirteen days later the symptoms returned in a severe form and the intravenous injection of 300 units was repeated. It was followed in a few minutes by cyanosis, a chill and temperature of 40.9 C., but the pulse kept good. After this partial shock had subsided there was no return of the symptoms of tetanus. Three days later, the seventeenth day after the first injection, 100 units were injected intravenously again, and this time a typical severe anaphylactic shock ensued at once, with total unconsciousness for half an hour and marbling of the body, the pulse scarcely perceptible, and finally a chill and temperature of 40.1 C. The recovery from the shock was rapid and complete in both cases. By the next day the pulse and breathing were normal and the men felt none the worse for it. These cases suggest that the tenth day seems to be the danger line. In a more recent case, after the patient had been given 1,000 units of the serum in the course of ten days, Simon changed to magnesium sulphate, injecting subcutaneously every day from 40 to 60 c.c. of a 25 per cent. solution. This patient is now practically cured.

34. **Treatment of Tetanus.**—Eunike reiterates that magnesium sulphate treatment is only symptomatic, and that antitetanus serum should never be neglected in treatment. In his eight cases, the five with the most serious syndrome were not influenced by the drug. In the other cases great benefit was apparent although the tetanus was of a severe type. The sulphate was given by intradural injection of 10 c.c. of a 10 per cent. solution; a second dose of 8 c.c. was given three days later as symptoms returned. Disturbances in hearing and hallucinations followed one of the injections in each case, but the tetanus was materially relieved in both after each injection.

35. **Tetanus.**—Angerer extols the excellent results he has had recently in the twenty-four cases of tetanus in his service treated by antitetanus serum plus 5 gm. of chloral in an enema twice a day, or 10 gm. once a day, supplemented by one or two doses of 0.01 gm. morphin. By this means the patient is kept drowsy, in a kind of twilight sleep, and thus is spared all nervous shocks from without. The results have been very encouraging. He has discarded magnesium sulphate as his experiences with it were very unfavorable. He keeps up the antitetanus serum, 100 units both intraspinally and subcutaneously, until the symptoms show a turn for the better—the amounts thus totaling from 300 to 1,600 units.

Riforma Medica, Naples

October 17, XXX, No. 42, pp. 1149-1176

38 Experimental and Clinical Study of Biologic and Therapeutic Action of Benzol, Selenium, Tellurium and Thorium. (Azione di alcune sostanze sul sangue ed organi emopojetici.) C. Martelli.

October 31, No. 44, pp. 1205-1232

39 Fatigue Toxins as Factor in Immunity. (Il valore delle kenotossine nei processi d'immunita.) V. Palmulli.
40 *The Pituitary Body in Pregnancy. (Ipofisi e gravidanza.) U. Scinicariello.
41 Serovaccine Therapy in Tuberculosis. (Il trattamento Bruschettini nella cura della tuberculosi.) A. Cadani and A. Carafoli.

40. **Experimental Research on the Pituitary Body.**—Scinicariello thinks he is justified in affirming on the basis of his research on three dogs and a bitch, that the pituitary body is not a vitally indispensable organ and that its destruction *in situ* does not entail psychic disturbances if there are no other lesions, tumors, etc., to compromise the functioning of the brain. After destruction of the hypophysis no motor or sensory disturbances were observed, no macroscopic changes in the shafts of the long bones, nor any tendency to obesity. As late as four months after the destruction of the pituitary body, one bitch conceived and bore an apparently normal litter; delivery proceeded apparently physiologically although the hypophysis was supposedly entirely destroyed and no trace of it was found post mortem.

Hygiea, Stockholm

LXXVI, No. 20, pp. 1137-1199

42 *Spontaneous Subarachnoidal Hemorrhage. (Spontana subarachnoidalblödningens patologi och diagnostik.) A. Forsheim.

42. **Spontaneous Hemorrhage in the Subarachnoidal Cavity.**—In Forsheim's first case the patient was a previously healthy woman of 20 who was taken suddenly with symptoms suggesting acute spinal meningitis. The attack was like an apoplectic stroke, the patient falling but not losing consciousness, complaining of intense headache and pain in the spine. She vomited several times and lay with her head thrown back, the pain in the back of the neck increasing when it was straightened. The Kernig-Lasègue signs were positive alike on both sides. There was no nystagmus nor paresis; the diagnosis of subarachnoid hemorrhage was made at once and ice was applied to the head and spine and calcium chlorid and acetyl salicylic acid were given. The next day lumbar puncture released blood-stained cerebrospinal fluid under very high pressure (330 mm.) and the patient was relieved immediately. The proportion of reds and whites was about the same as in the blood and there were no clots. Lumbar puncture the following day showed still a pressure of 220 mm. but it dropped to 120 mm. after withdrawal of 20 c.c. Continued improvement followed, the temperature dropped to normal the fourth day after the second puncture and recovery was soon complete. The hemorrhage occurred while she was pumping water. The second patient was a youth of 17 and nine lumbar punctures were required. The onset and course were the same as in the first case. The fluid was under 450 mm. pressure at first, the pulse 60. The pressure kept high, over 300 mm. during the period of the first seven lumbar punctures, but there did not seem to be any additional hemorrhage after the first. Both patients recovered completely. Forsheim warns of the necessity for recording the pressure in the fluid, not allowing it to drop too low during the procedure, and repeating it at need.

Book Notices

A Text-Book of the Diseases of the Nose and Throat. By Jonathan Wright, M.D., Director of the Department of Laboratories, New York Post-Graduate Medical School, and Harmon Smith, M.D., Surgeon to the Throat Department of the Manhattan Eye, Ear, Nose and Throat Hospital. Cloth. Price, $5 net. Pp. 683, with 327 illustrations. Philadelphia: Lea & Febiger, 1914.

Any work fathered by this well-known pathologist must command the respect of the profession, and those who are familiar with the clear, carefully prepared articles of the gifted secretary of the American Laryngological Association will necessarily be attracted by this greater work. It is largely devoted to the etiology and pathology of the diseases of which it treats, but the symptomatology and diagnosis, the topical and operative treatment of the diseases of the upper air passages have not been neglected. The work is comprehensive and yet fairly concise, and goes directly to the point without tiring the reader with a mass of speculation and unproved theory. The equipment and methods of examination are well described in the first chapter. The second chapter is devoted to the embryology and anatomy of the nose, its external deformities and their correction. The third chapter considers the anatomy, histology and physiology of the internal nose, thus furnishing a foundation on which the student may build a consistent system of diagnosis and treatment of the numerous abnormal conditions of this region. The anatomy, embryology and histology of the pharynx and larynx each have a separate chapter. The numerous diseases of these parts have all been carefully considered and treated in a manner especially adapted for the practitioner who wishes to know, and for the student trying to learn. The book is admirably illustrated and is arranged for quick and accurate reference by the man in active practice, which gives it especial value; but it also is peculiarly adapted to the needs of students who have not had experience in this field.

Technic der Speziellen Klinischen Untersuchungsmethoden. Herausgegeben von Prof. Dr. Theodor Brugsch, 1 Assistent der 11 Medizinischen, und Prof. Alfred Schittenhelm, Direktor der Medizinischen Universitatsklinik in Königsberg. Second edition, Parts 1 and 2. Paper. Price, 36 marks. Pp. 1078, with 476 illustrations. Berlin: Urban & Schwarzenberg, 1914.

These two volumes form the second part of the authors' "Lehrbuch klinischer Untersuchungsmethoden," the first part of which appeared a few years ago. In this section have been grouped the special laboratory methods, which are such valuable adjuncts to the more direct clinical examination of the patient. The subject-matter of these volumes is varied, covering pathologic, bacteriologic, serologic and chemical methods which may be employed in the effort to reach an accurate diagnosis. The work is entitled to rank with the older one of Sahli, which has so long been regarded as the most authoritative one on the subject. Although these volumes do not take the place of those dealing with special fields of laboratory diagnosis, yet they may be recommended to the student and laboratory worker as a reliable and fairly comprehensive guide.

The Medical Record Visiting List or Physician's Diary for 1915. Leather. Price, $1.50. New York: William Wood & Co., 1914.

Practitioner's Visiting List for 1915. Leather. Price, $1.25 net. Philadelphia: Lea and Febiger.

The Physician's Visiting List for 1915. Leather. Price, $1.25. Philadelphia: P. Blakiston's Son & Co., 1914.

The visiting lists for 1915 follow in general the style adopted in previous years. The make-up is the same as to arrangement of pages and sections for memoranda.

The Medical Record Visiting List contains a calendar, obstetric table, table of approximate equivalents, dosages, a list of solutions for subcutaneous injection and for atomization and inhalation, some miscellaneous hints, information on the treatment of poisoning and emergencies, artificial respiration, signs of death, and hints on the writings of wills.

The Practitioner's Visiting List gives information on dentition, a note on estimating the date of confinement, comparative scales of weights and measures, a section on the examination of the urine, a table of incompatibilities, a note on artificial respiration, a table of the eruptive fevers, a list of poisons and antidotes, a table of doses given in apothecaries' and metric systems, and a list of therapeutic reminders similar to that published in various handbooks issued by drug houses. Finally there is an article on the ligation of arteries.

The Physician's Visiting List is issued for various numbers of patients. It contains a calendar, a table for calculating the period of uterogestation, an article on incompatibilities, the treatment of poisoning, tables of weights and measures, a dosage table which gives official and unofficial drugs in both apothecaries' and metric systems, a table of quarantine periods in infectious diseases, an article on the treatment of asphyxia and apnea, and a comparison of the thermometric scales.

The Cancer Problem. By William Seaman Bainbridge, A. M., Sc.D., M.D., Professor of Surgery, New York Polyclinic Medical School and Hospital. Cloth. Price, $4 net. Pp. 534, with 38 illustrations. New York: The Macmillan Company, 1914.

The purpose of this book is to give in succinct form such a summary of the knowledge concerning cancer as may be of value to the general practitioner, the specialist, the intelligent layman and the lecturer on health matters. There are fourteen sections: on history, the major part being devoted to the history of modern cancer research; general distribution, botanical, zoological, geographical and ethnologic; statistical considerations; etiology; histopathology; cancer research—a summary of the world's work; clinical course; prophylaxis; investigation of cancer cures; non-surgical treatment; surgical treatment; irremovable cancer; institutions for the care of cancer patients, and on the campaign of education. This enumeration indicates that every phase of the cancer problem receives consideration, and it must be said that the object of giving a dependable summary of our knowledge of cancer for the large circle of readers has been accomplished with success. The various theories are stated clearly, the statements of facts are reliable, the practical deductions are sound, and an attitude of openmindedness is maintained in regard to all open questions. Being a fluent writer, the author often uses many more words than necessary, and quite a little detail has been introduced that is of no particular value in a book of this nature; but on the whole he has acquitted himself of the difficult task with credit.

The Pharmacy Handbook. By F. W. Crossley-Holland, F.C.S. Cloth. Price, $2. Pp. 224. New York: Oxford University Press, 1914.

The chief aim of this book is to present ready reference to information on matters which come within the purview of the practicing pharmacist. It is not a systematic treatise on pharmacy, but includes such incidental matters as the relations of the pharmacist to the physician, the trend of therapeutics, facts with reference to the newer therapeutic remedies, some of the principles of dietetics, etc. A special chapter is given to bacteriology, another to incompatibility and one to the ethics of pharmacy. In this chapter the author discusses the ownership of the prescription in which he states that custom and the patient have settled the matter, and the prescription seems unquestionably to belong to the patient. On the other hand, he states that the pharmacists's copy belongs to the pharmacist alone.

The Feces of Children and Adults. Their Examination and Diagnostic Significance with Indications for Treatment. By P. J. Cammidge, M.D. Cloth. Price, $5 net. Pp. 516, with 109 illustrations. New York: William Wood & Co., 1914.

This new book of Cammidge makes extensive use of Hecht's "Die Faeces des Säuglings und des Kindes" as well as of Schmidt and Strasburger's "Die Faeces des Menschen," although much original matter is also included. The practical part of the book follows as far as possible the sequence in which routine examinations are usually made, namely, macroscopic examination, microscopic examination for general food and other residues, parasites and their ova, as well as for various bacteria, and, lastly, the chemical examination. Chapter IX, dealing with the diagnostic value of examinations of the feces, is especially valuable and worthy of mention. Chapter X discusses the indications for the treatment of abnormalities found. The subject-matter is well selected and arranged; the text is clear and concise; the methods of examination are the most satisfactory at our disposal. The illustrations are excellent. Cammidge rightly points out that "it is essential, for the greatest advantage to accrue to the patient, that the pathologist should be aware of the clinical signs and symptoms, so that he may arrange his investigations accordingly." The results of these investigations should be interpreted by the examiner only in consultation with the clinician. This book may be regarded as he most authoritative in the English language and should to the more frequent examination of the feces as well a better understanding of such examinations when made. earnestly recommend this book to all practitioners, especially to those who may wish to have their fecal examinations made by others and who may desire a fuller knowledge of the proper interpretation of such examinations.

Pathogenic Micro-Organisms. A Practical Manual for Students, Physicians and Health Officers. By William Hallock Park, M.D., Professor of Bacteriology, University and Bellevue Hospital Medical College, and Anna W. Williams, M.D., Assistant Director of the Bureau of Laboratories, New York. Fifth Edition. Cloth. Price, $4 net. Pp. 684, with 219 illustrations. Philadelphia: Lea & Febiger, 1914.

In this edition of the well-known book of Park and Williams the material has been rearranged in order to bring more closely together all of the pathogenic organisms. Part I deals with the general characteristics and methods of study of all the micro-organisms considered (molds, yeasts, bacteria and protozoa); Part II includes the study of the individual pathogenic organisms, while Part III presents certain practical aspects of the subject under the title "Applied Microbiology." The subject of immunity has been extensively discussed. A new chapter on filterable viruses has been inserted. This is one of the most practical books at the disposal of the general or special worker, although not so extensive as some. The sections on technic are much more exhaustive than are usually found in general works on bacteriology, while the subject-matter is written with direct appeal to the physician and health officer. The enormous practical experience of the writers in the laboratories of the New York Health Department lends strength to the statements given as well as to the selection of methods advocated. The book may be unhesitatingly recommended to all workers who have occasion to resort to bacteriologic methods in their investigations.

Morris' Human Anatomy. A Complete Systematic Treatise by English and American Authors. Edited by C. M. Jackson, M.S., M.D., Professor of Anatomy, University of Minnesota. Fifth edition. Cloth. Price, $6 net. Pp. 1539, with 1,182 illustrations. Philadelphia. P. Blakiston's Son & Co., 1914.

This edition of this standard work includes many new illustrations and a few changes in arrangement. There is a good thumb index, which aids in the usefulness of such large books as our modern anatomies have come to be. An interesting feature is the reproduction of serial roentgenograms of the stomach. Needless to state, the Basle anatomic nomenclature is used throughout, the previous edition of this book being the first general text-book in anatomy in English to adopt the now generally used terminology.

A Text-Book of Physiological Chemistry. By Olof Hammarsten, Emeritus Professor of Medical and Physiological Chemistry in the University of Upsala. With the Collaboration of S. G. Hedin, Professor of Medical and Physiological Chemistry in the University of Upsala. Authorized translation from the Eighth German Edition by John A. Mandel, Sc.D., Professor of Chemistry in the New York University and Bellevue Hospital Medical College. Seventh edition. Cloth. Price, $4 net. Pp. 1026. New York: John Wiley & Sons, 1914.

"At this time, when so many new and important biochemical facts are being published and when so many older theories and deductions are found more or less erroneous, due to recent investigations using new methods," it is very fortunate that we have been given this complete and critical compilation by Professor Hammarsten. In the work of revision, Professor Hedin has aided considerably by taking care of many of the chapters dealing with subjects with which his own work has been closely identified. This work does not lend itself to a close review, as the subject-matter is too extensive and too diversified. The work stands as the most authoritative one on this subject, so that we must thank Professor Mandel for his careful and excellent translation. The book is recommended both to the student and the advanced worker as a mine of information on the various phases of physiologic chemistry.

A Manual of Bacteriology, Clinical and Applied. By R. Tanner Hewlett, M.D., F.R.C.P., D.P.H., Professor of Bacteriology in the University of London. Fifth edition. Cloth. Price, $4.50. Pp. 668, with illustrations. St. Louis: C. V. Mosby Company, 1914.

The text in this edition of Hewlett's book has been revised, and many alterations and additions have been made in the preliminary chapters dealing with the structure and classification of micro-organisms and with the methods of cultivation, isolation and staining. The portions treating of the specific organisms have, for the most part, been enlarged, while much new matter dealing with the protozoa has been inserted. The theoretical parts of the book have been considerably augmented. The text is clear and concise; the subject-matter is well selected; the methods of diagnosis, while not exhaustive, are adequate for general work, and the general make-up of the work is satisfactory. The book is to be recommended to the student as well as to the general practitioner who may wish to become more familiar with this field of medical science.

A Practical Medical Dictionary of Words Used in Medicine. With Their Derivation and Pronunciation, Including Dental, Veterinary, Chemical, Botanical, Electrical, Life Insurance and Other Special Terms; Anatomical Tables of the Titles in General Use and Those Sanctioned by the Basle Anatomical Convention; Pharmaceutical Preparations, Official in the U. S. and British Pharmacopeias and Contained in the National Formulary; Chemical and Therapeutic Information as to Mineral Springs of America and Europe and Comprehensive Lists of Synonyms. By Thomas Lathrop Stedman, A.M., M.D. Third edition. Leather. Price, $5 net. Pp. 1057, with illustrations. New York: William Wood & Co., 1914.

This edition is larger by thirty pages than the previous one, and new plates have been made for the whole book. It has been brought up to date by the incorporation of a large number of new terms which have come into medical literature since the former issue.

Heredity and Sex. By Thomas Hunt Morgan, Ph.D., Professor of Experimental Zoology, Columbia University. Cloth. Price, $1.75 net. Pp. 282, with 121 illustrations. New York: Columbia University Press, 1913.

This book consists of the Columbia University Jesup Lectures for 1913. The newest researches are included, and the author correlates the study of heredity with the study of the changes in the germ cell. The work includes chapters on the evolution of sex; mechanism of sex determination; Mendelian principles; secondary sexual characters; effects of castration and transplantation; gynandromorphism, hermaphroditism, parthenogenesis and sex; fertility and special cases of sex inheritance. There is a well-chosen bibliography to complete a book which is succinct, nicely printed and well illustrated.

The Infant—Nutrition and Management. By Eric Pritchard, M. A., M.D., M.R.C.P., Physician to the Queen's Hospital for Children, London. Cloth. Price, $1 net. Pp. 265. New York: Longmans, Green & Co., 1914.

The author has here collected lectures delivered at sundry times and places on such subjects as the establishment of lactation and management of breast feeding, physiologic principles concerned in the nutrition and the quantitative food requirements of infants, training of the nerve centers, constipation and its treatment with petrolatum, convulsions, rickets, etc. It fairly well covers the general principles of the subject, and in a way that in many instances is quite at variance with orthodox views. As a book it has the defects of the diffuse style of the lecture and many repetitions, for which the author makes apology.

JOURNALS INDEXED IN THE CURRENT MEDICAL LITERATURE DEPARTMENT JULY-DECEMBER, 1914

The following journals have been indexed in the Current Literature Department of THE JOURNAL during the past six months. Any of the foreign journals, except those starred, will be lent by THE JOURNAL to subscribers in the United States and to Fellows of the American Medical Association for a period not exceeding three days. *Only one journal may be borrowed at a time.* Requests for periodicals should be addressed to the Library of the American Medical Association and six cents in stamps should be enclosed. This covers the average expense of mailing a journal. Domestic journals can be obtained by sending the approximate amount direct to the respective publishers. Thus most of the journals indexed are accessible to the general practitioner, no matter where he may be located.

Albany Medical Annals. M. $2 170 Washington Ave., Albany, N. Y.
American Journal of Anatomy. Bi-m. $5. 36th St. and Woodland Ave., Philadelphia.
American Journal of Diseases of Children. M. $3. American Medical Association, 535 N. Dearborn St., Chicago.
American Journal of Insanity. Q. $5. Johns Hopkins Press, Baltimore.
American Journal of the Medical Sciences. M. $5. Lea & Febiger, 706 Sansom St., Philadelphia.
American Journal of Obstetrics and Diseases of Women and Children. M. $5. Wood & Co., 51 Fifth Ave., New York City.
American Journal of Orthopedic Surgery. Q. $3. P. Blakiston's Son & Co., 1012 Walnut St., Philadelphia.
American Journal of Physiology. M. $5. Johns Hopkins Medical School, Baltimore, Md.
American Journal of Public Health. M. $3. 755 Boylston St., Boston.
American Journal of Roentgenology. M. $5. 32 Adams Ave., West, Detroit.
American Journal of Tropical Diseases and Preventive Medicine. M. $2. P. O. Drawer 602, New Orleans, La.
Annales de gynécologie et d'obstétrique. M. 22 francs. Paris.
Annales de médecine et chirurgie infantiles. Semi-m. 12 francs. Paris.
Annales de la Société médecine et chirurgie de Liége. M. 8 francs.
Annals of Ophthalmology. Q. $4. Mermod-Jaccard Bldg., St. Louis.
Annals of Otology, Rhinology and Laryngology. Q. $4. Mermod-Jaccard Bldg., St. Louis.
Annals of Surgery. M. $5. J. B. Lippincott Co., E. Washington Square, Philadelphia.
Annals of Tropical Medicine and Parasitology. Q. $5. Liverpool.
Archiv für Gynäkologie. Irregular. Price varies. Berlin.
Archiv für Kinderheilkunde. Irregular. 15 marks. Stuttgart.
Archiv für klinische Chirurgie. Irregular. Price varies. Berlin.
Archiv für Verdauungs-Krankheiten. Bi-m. 24 marks. Berlin.
Archives des Sciences Biologiques. Irreg. 9 rubles. Petrograd.
Archives générales de chirurgie. M. 26 francs. Paris.
Archives générales de médecine. M. 18 francs. Paris.
Archives of Diagnosis. Q. $1. 250 W. 73d St., New York.
Archives of Internal Medicine. M. $4. American Medical Association, 535 N. Dearborn St., Chicago.
*Archives internationales de chirurgie. Irregular. 30 francs. Ghent.
*Archives des maladies de l'appareil digestif et de la nutrition. M. 14 francs. Paris.
Archives des maladies du cœur, des vaisseaux et du sang. M. 17 francs. Paris.
*Archives de médecine des enfants. M. 18 francs. Paris.
Archives mensuelles d'obstétrique et de gynécologie. M. 25 francs. Paris.
Archives of Ophthalmology. Bi-m. $5. G. P. Putnam's Sons, 27 W. 23d St., New York.
Archives of Pediatrics. M. $3. E. B. Treat & Co., 241 W. 23d St., New York.
Archives of Roentgen Ray. M. $4.50. London.
Arizona Medical Journal. M. $2. Phoenix, Ariz.
*Beitrage zur Geburtshilfe und Gynaekologie. Irregular. Price varies. Leipsic.
Beiträge zur Klinik der Tuberkulose. Irregular. 16 marks. Wurzburg.
*Beitrage zur klinischen Chirurgie. M. Price varies. Tübingen.
Berliner klinische Wochenschrift. W. 24 marks. Berlin.
Boston Medical and Surgical Journal. W. $5. 101 Tremont St., Boston.
Brain: A Journal of Neurology. Irregular. $4. London.
Brazil Medico. W. 20 milreis. Rio de Janeiro.
Bristol Medico-Chirurgical Journal. Bi-m. $3.
British Journal of Children's Diseases. M. $5. London.
British Journal of Surgery. Q. $6.50. William Wood & Company, 51 Fifth Ave., New York.
British Journal of Tuberculosis. Q. $1.25. London.
British Medical Journal. W. $8.50. London.
Bulletin de l'Académie de médecine. W. 20 francs. Paris.
Bulletin of the American Academy of Medicine. Bi-m. $3. 52 N. Fourth St., Easton, Pa.
Bulletin of the Johns Hopkins Hospital. M. $2. Baltimore.
Bulletin of the Lying-in Hospital of the City of New York. Irregular. $1. 23 E. 93d St., New York City.
Bulletin of the Medical and Chirurgical Faculty of Maryland. M. $0.25. 1211 Cathedral St., Baltimore.
Bulletins de la Sociéte de pédiatrie de Paris. M. 10 francs.
California State Journal of Medicine. M. $1. Butler Bldg., San Francisco.
Canadian Medical Association Journal. M. $5. 145 Wellington St., W., Toronto.
Centralblatt für die Grenzgebiete der Medizin und Chirurgie. Irregular. 22 marks. Jena.
Cleveland Medical Journal. M. $2. 2318 Prospect Ave., Cleveland.
Colorado Medicine. M. $2. Metropolitan Bldg., Denver.
Correspondenz-Blatt für schweizer Aerzte. W. 22 francs. Basel.
Delaware State Medical Journal. M. $1. 309 Shipley St., Wilmington, Del.
Deutsche medizinische Wochenschrift. W. 32 marks. Berlin.
*Deutsche Zeitschrift für Chirurgie. M. Price varies. Leipsic.
*Deutsches Archiv für klinische Medizin. Irregular. Price varies. Leipsic.
Dublin Journal of Medical Science. M. $5.
Edinburgh Medical Journal. M. $6.
Gazetta degli ospedali e delle cliniche. Tri-w. 25 francs. Milan.
Glasgow Medical Journal. M. $5.
Grèce médicale. Semi-m. 12 francs. Athens.
Hospitalstidende. W. 27.5 kronen. Copenhagen.
Hygiea. M. $5. Stockholm.
Illinois Medical Journal. M. $2. 3338 Ogden Ave., Chicago.
Indian Medical Gazette. Bi-m. $5. Calcutta.
Jahrbuch für Kinderheilkunde. M. 36 marks. Berlin.
Journal de chirurgie. M. 44 francs. Paris.
Journal de médecine de Bordeaux. W. 15 francs.
Journal d'urologie médicale et chirurgicale. M. 40 francs. Paris.
Journal of Abnormal Psychology. Bi-m. $4. R. G. Badger, 194 Boylston St., Boston.
Journal of the American Medical Association. W. $5. 535 N. Dearborn St., Chicago.
Journal of the Arkansas Medical Society. M. $1. 810 State Bank Bldg., Little Rock, Ark.
Journal of Biological Chemistry. M. $3. 2419 York Road, Baltimore.
Journal of Cutaneous Diseases. M. $5. Rebman Company, 141 W. 36th St., New York.
Journal of Experimental Medicine. M. $5. Rockefeller Institute for Medical Research, 66th St. and Avenue A, New York.
Journal of the Florida Medical Association. M. $1.00. 334 St. James Bldg., Jacksonville, Fla.
Journal of the Indiana State Medical Association. M. $1. 219 W. Wayne St., Fort Wayne, Ind.
Journal of Infectious Diseases. Q. $5. 57th St. and Greenwood Ave., Chicago.
Journal of Iowa State Medical Society. M. $2. Washington, Ia.
Journal of Kansas Medical Society. M. $2. 501 Husted Bldg., Kansas City, Kan.
Journal of Laryngology, Rhinology and Otology. M. $5. London.
Journal of Maine Medical Association. M. $2. Portland, Maine.
Journal of Medical Association of Georgia. M. $1. Harison Bldg., Augusta, Ga.
Journal of Medical Research. M. $4. 240 Longwood Ave., Boston.
Journal of Medical Society of New Jersey. M. $2. 252 Main St., Orange, N. J.
Journal of Michigan State Medical Society. M. $2. 91 Monroe Ave., Grand Rapids, Mich.
Journal of Missouri State Medical Association. M. $2. 3525 Pine St., St. Louis.

W.—Weekly; M.—Monthly; Semi-m.—Semi-monthly; Bi-m.—Bi-monthly; Q.—Quarterly. *Cannot be loaned.

Journal of Nervous and Mental Diseases. M. $5. 64 W. 56th St., New York.
Journal of Obstetrics and Gynecology of the British Empire. M. $6.25. London.
Journal of Oklahoma State Medical Association. M. $2. Muskogee.
Journal of Outdoor Life. M. $1. 289 Fourth Ave., New York.
Journal of Parasitology. Q. $2. Urbana, Ill.
Journal of Pathology and Bacteriology. Q. $5.50. Cambridge, Eng.
Journal of Pharmacology and Experimental Therapeutics. Bi-m. $5. 2419 York Road, Baltimore.
Journal of South Carolina Medical Association. M. $2. Charleston, S. C.
Journal of State Medicine. M. 50 cents. London.
Journal of Tennessee State Medical Association. M. $2. Jackson Bldg., Nashville, Tenn.
Journal of Tropical Medicine and Hygiene. Semi-m. $5. London.
Journal-Lancet. Semi-m. $2. 839 Lumber Exchange, Minneapolis.
Kentucky Medical Journal. Semi-m. $2. Atherton Bldg., Bowling Green, Ky.
Lancet. W. $8. London.
Lancet-Clinic. W. $3. Main near Seventh St., Cincinnati.
Laryngoscope. M. $5. 3858 Westminster Place, St. Louis.
Lyon chirurgical. M. 25 francs.
Lyon médical. W. 20 francs.
Medical Record. W. $5. W. Wood & Co., 51 Fifth Ave., New York.
Medizinische Klinik. W. 32 marks. Berlin.
Military Surgeon. M. $3.50. 535 N. Dearborn St., Chicago.
Mississippi Medical Monthly. M. $1. 506 First National Bank Bldg., Vicksburg, Miss.
Mitteilungen aus den Grenzgebieten der Medizin und Chirurgie. Irregular. 25 marks. Jena.
Mitteilungen aus der medizinischen Fakultät der Kaiserlichen Universität zu Tokyo. Irreg. Price varies. Tokio.
Modern Hospital. M. $3. Metropolitan Bldg., St. Louis.
Monatsschrift für Geburtshülfe und Gynäkologie. M. 42 marks. Berlin.
*Monatsschrift für Kinderheilkunde. M. 20 marks. Leipsic.
Münchener medizinische Wochenschrift. W. 32 marks. Munich.
*Nederlandsch Tijdschrift voor Geneeskunde. W. 10.50 florins. Amsterdam.
New Mexico Medical Journal. M. $2. P. O. 23, Las Cruces, N. M.
New Orleans Medical and Surgical Journal. M. $2. 1551 Canal St., New Orleans.
New York Medical Journal. W. $5. A. R. Elliott Publishing Co., 66 W. Broadway, New York.
New York State Journal of Medicine. M. $1. 17 W. 43d St., New York.
*Nordiskt Mediciniskt Arkiv. Irregular. 30 marks. Stockholm.
Norsk Magazin for Lægevidenskaben. M. $5. Christiania.
Northwest Medicine. M. $2. Cobb Bldg., Seattle, Wash.
Ohio State Medical Journal. M. $2. 207 E. State St., Columbus, Ohio.
Old Dominion Journal of Medicine and Surgery. M. $2. 116 E. Franklin St., Richmond, Va.
Ophthalmic Record. M. $4. 7 W. Madison St., Chicago.
Ophthalmology. Q. $5. 711 Cobb Bldg., Seattle, Wash.
Pediatria. M. 12.50 lire. Naples.
Pediatria. M. 6 rubles. Petrograd.
Pennsylvania Medical Journal. M. $2. Athens, Pa.
Philippine Journal of Science. Irregular. $7. Manila, P. I.
Policlinico. W. 32 lire. Rome.
Practitioner. M. $6.50. London.
Presse médicale. Semi-w. 15 francs. Paris.
Public Health Journal. M. $2. York Publishing Co., Lumsden Bldg., Toronto.
Quarterly Journal of Medicine. $6.50. London.
Revue de chirurgie. M. 33 francs. Paris.
*Revue de gynécologie. M. 30 francs. Paris.
*Revue de médecine. M. 23 francs. Paris.
Revue médicale de la Suisse romande. M. 14 francs. Geneva.
Revue mensuelle de gynécologie, d'obstétrique et de pédiatrie. M. 12 francs. Paris.
Revue pratique d'obstetrique et de gynécologie. M. 8 francs, Paris.
Riforma medica. W. 35.50 lire. Naples.
Rivista Ospedaliera. Semi-m. 20 lire. Rome.
Russkiy Vrach. M. 13 rubles. Petrograd.
St. Petersburger medizinische Zeitschrift. Semi-m. 14 marks. Petrograd.
Sei-I-Kwai. M. $2. Tokio.
Semaine médicale. W. 15 francs. Paris.
Semana médica. W. $5. Buenos Aires.
Southern Medical Journal. M. $2. 905 Van Antwerp Bldg., Mobile, Ala.
Surgery, Gynecology and Obstetrics. M. $5. Surgical Publishing Co., 31 N. State St., Chicago.
Surgery, Gynecology and Obstetrics with International Abstract of Surgery. M. $10. Surgical Publishing Co., 31 N. State St., Chicago.
Svenska Lakaresällskapets Handlingar. Irregular. 7.50 kronen. Stockholm.
Texas State Journal of Medicine. M. $1.50. Western National Bank Bldg., Fort Worth, Tex.
Therapeutische Monatshefte. M. 12 marks. Berlin.
Therapie der Gegenwart. M. 14 marks. Berlin.
Tumori. Bi-m. 25 lire. Rome.
Ugeskrift for Læger. W. 20 kr. Copenhagen.
United States Naval Medical Bulletin. Q. $1. Washington, D. C.
Upsala Lakareförenings Förhandlingar. Irregular, 10 kr.
Vermont Medical Monthly. M. $1. Burlington Medical Publishing Co., Burlington, Vt.
Washington Medical Annals. Bi-m. $1. 2114 18th St., N. W., Washington, D. C.
West Virginia Medical Journal. M. $1. Wheeling, W. Va.
Wiener klinische Wochenschrift. W. 24 marks. Vienna.
Wisconsin Medical Journal. M. $2. Goldsmith Bldg., Milwaukee.
Zeitschrift für Geburtshülfe und Gynäkologie. Irregular. Price varies. Stuttgart.
*Zeitschrift für Kinderheilkunde. Irregular. 18 marks. Berlin.
*Zeitschrift für klinische Medizin. Irregular. 16 marks. Berlin.
*Zeitschrift für Urologie. M. 30 marks. Berlin.
Zentralblatt für Chirurgie. W. 30 marks. Leipsic.
Zentralblatt für Gynäkologie. W. 30 marks. Leipsic.
Zentralblatt für innere Medizin. W. 30 marks. Leipsic.

The following journals are not indexed in the Current Medical Literature Department of The Journal, but may be borrowed under the usual conditions.

Annales de dermatologie et de syphiligraphie. M. 32 francs. Paris.
Archives internationales de laryngologie, d'otologie et de rhinologie. Bi-m. 22 francs. Paris.
Bulletin de la Société française de dermatologie et de syphiligraphie. Semi-m. 17 francs. Paris.
Bulletins de la société médicale des hôpitaux. W. 28 francs. Paris.
Bulletins de la Société de radiologie médicale de Paris. M. 22 francs. Paris.
Crónica médica. Semi-m. 15 francs. Lima, Peru.
Crónica médica méxicana. M. 2.00 oro. Mexico.
Dermatologische Wochenschrift. M. 24 marks. Hamburg.
Gazette médicale belge. W. 7 francs. Liége.
Gesundheitslehrer. M. Warnsdorf.
Ginecologia. Bi-m. 15 lire. Florence.
Iatriki Proodos. Semi-m. Athens.
Internationales Centralblatt für die gesamte Tuberkulose-Forschung. M. 20 marks. Würzburg.
Janus. M. $5. Leyden.
Lavoro. Semi-m. Milan.
Pediatria Española. M. 12 francs. Madrid.
Prager medizinische Wochenschrift. W. 17 marks. Prague.
Prènsa médica. M. Havana.
Progrès médical. W. 12 francs. Paris.
Revista Clinica de Madrid. Semi-m.
Rivista critica di Clinica Medica. W. 16 L. Florence.
Revista medica Cubana. M. Havana.
Revista de medicina y cirugia. Semi-m. $4.50. Havana.
Rivista di patologia nervoca e mentale. M. 30 lire. Florence.
Siglo médico. W. 20 pesetas. Madrid.
Tidsskrift for den norske Lægeförening. Semi-m. 15 kronen. Christiania.
Wiener klinische Rundschau. W. 30 francs. Vienna.

W.—Weekly; M.—Monthly; Semi-m.—Semi-monthly; Bi-m.—Bi-monthly; Q.—Quarterly. *Cannot be loaned.

EXPLANATION OF THE USE OF THE INDEX

This is an index not only to the reading matter in THE JOURNAL, but also to original articles in the principal medical periodicals of this and other countries. The reading matter appearing in THE JOURNAL is distinguished by the use of **black-faced numerals.**

The letters used to explain in which department the matter indexed appears are as follows: "E," Editorial; "C," Correspondence; "T," Therapeutics; "Ml," Medicolegal; "P," Propaganda for Reform; "ME," Medical Economics; "ab," abstract; the star (*) indicates an "Original Article" in THE JOURNAL.

This is a subject index and one should, therefore, look for the chief word, with the following exceptions: "Deaths" and "Society Proceedings" are indexed under these titles at the end of the letters "D" and "S." Matter pertaining to the Association is indexed under "American Medical Association."

All matter is indexed under the most important word of the heading used in THE JOURNAL, and also under the subject heading. For instance, abscess of the brain will be found under "abscess," as well as under "brain." Such titles as "ocular manifestations, etc." have been indexed under "Eye." Cross references have been liberally used.

The figures in parentheses refer to the paragraph, the number following to the page in THE JOURNAL.

ABDOMEN, gunshot wound of, with rupture of pregnant uterus, ***243**

This reference is to an original article in THE JOURNAL, as shown both by the star and by the black-faced numerals indicating the page.

ACID, fruit, and blood, **420**

This reference, as indicated by the black-faced figures, is also in THE JOURNAL, and on turning to page 420 we find an answer to a question in the Department of Queries and Minor Notes.

HERNIA, diaphragmatic, (125) **1234**

In this reference, the (125) indicates that the article is in the Current Literature Department and the fact that the page number is in black-faced type shows that the article is abstracted and discussed in THE JOURNAL. Turning to page 1234 we find (125) refers to an article by S. McGuire in the *Southern Medical Journal,* September.

ACETONEMIA, periodical vomiting with, (87) 813

The fact that in this last reference the page is given in ordinary type indicates that only the title of the article is given. Turning to page 813 we find that the numeral (87) refers to a paper on that subject by G. Hilliger which appeared in *Jahrbuch für Kinderheilkunde,* July.

In the AUTHOR'S INDEX are the names of the authors of articles which have appeared in THE JOURNAL of the American Medical Association and of articles that have been listed from week to week in the Department of Current Medical Literature as having appeared in other journals. The black-faced numerals indicate that the article is in THE JOURNAL, either in full or in abstract. The star (*) preceding the page number, indicates an original article.

SUBJECT INDEX

A

ABATTOIRS, public, (114). 1139
ABBOTT'S frame for applying scoliosis jackets, modification of, (123) 510
  treatment of scoliosis, (12, 15) 1788
  treatment of scoliosis, fatal tetanus following, 44, (52) **201**
ABDERHALDEN'S dialysis test applied with casein, (82) **517**
  serodiagnosis, (164) 285, (181) 439, (126) **2170**
  serodiagnosis, adsorption in, phenomena from, (68) 613
  serodiagnosis, articles on, **1872**
  serodiagnosis by dialysis, (92) 435
  serodiagnosis, demonstration of, (27) **1695**, (56) 1880
  serodiagnosis, experimental study of, (41) **1981**
  serodiagnosis in chlorosis, (146) 284
  serodiagnosis in dementia praecox, (53) 1880
  serodiagnosis in mental cases, precautions and limitations, (55) 1880
  serodiagnosis, negative, excludes pregnancy, (53) 1885
  serodiagnosis of cancer, ***1169**, (39) 1237, (122) 1327, (32) 1428
  serodiagnosis of pregnancy, (52) 352, (89) 353, ***1172**, **1500**—ab
  serodiagnosis of pregnancy in obstetrics and gynecology, value of, ***371**
  serodiagnosis of pregnancy, limitations of, ***370**
  serodiagnosis of syphilis, (182) 361, (41) **1055**
  serodiagnosis of syphilis, technic, (32) **1135**
  serodiagnosis, technic of, (42) 709, (74) 2080, (26) 2311
  serodiagnosis with normal and pathologic serums, **1787**—ab
ABDOMEN, acute, diagnosis and surgical technic in, (137) 277
  acute, surgical diagnosis in, (14) 278
  acute surgical, pain in shoulder as phrenic-nerve symptom with, (50) 1060
  adhesions, (67) 1606
  cecum and chronic disorders in right lower, (85) 2074
  diagnostic problems of upper, (167) 973
  disease of lower, simulating tumors of uterus and adnexa, 6 cases, (17) 2165
ABDOMEN, distention after operations on pelvic viscera, **1418**—ab, (8) 2070
  drainage, omentum in, (43) **1055**
  gas formation in open cavity, (51) 2166
  Gibson chart in diagnosis and prognosis of acute affections of, (50) 1055
  gunshot wounds, (98) 353, (106) 359, (47) 1060, (50) 1137
  gunshot wounds in war, treatment, (87) **1333**
  gunshot wounds of thorax or, is operative treatment required? (22) 809
  gunshot wounds of, with rupture of pregnant uterus, ***243**
  hemorrhage, accidental, with free blood in, (18) 1610
  hernia of wall, (6) 1230
  incisions and intra-abdominal pressure, (93) **1138**
  injuries, (109) 1138
  iodin in, use of, (83) 807
  mass, unattached, found in male, (14) 1323
  mobilization of wall to draw it over to close large defect, (88) 979
  muscles in typhoid, tonicity of, (43) 1700
  organic disease of, gastric neurosis from, (9) 58
  pain, (140) 893
  pain, acute, due to accessory spleen, (32) **2165**
  pain and tenderness, clinical features of, (36) 967
  pain in surgical diseases of, diagnostic value, (37) 1325, **1876**—ab
  pain, left-sided, abdominal aneurysm cause of, (94) 1425
  Ptosis of: See Splanchnoptosis
  reflexes, abdominal cutaneous, in acute conditions in pelvis and, (150) 1608
  rigidity, (11) 58, (56) 67
  skin of, compressor instrument for moving of, in roentgenotherapy, (72) **1332**
  Sprengel's plastic transverse incision, ultimate results with, (49) 2077
  Surgery: See also Laparotomies
  surgery, points of practical importance in, ***815**, (11) 1236, (19) 1700
  surgical aspect of diseases producing peritonitis, (190) 973
ABDOMEN, surgical treatment of, elimination of preventable 7 per cent. mortality in, (84) **807**
  surprises, (10) 64
  symptoms, (6) 58, (74) 607
  tuberculosis of, operative treatment, 81 cases, (62) **1062**
  visual inspection of thorax and, direct, (120) 2170
  wall, plastic operations on, (163) 361
  wall, transplantation of fascia in injuries of, (47) 356
  wounds in the field, (66) 202
  wounds, penetrating, ***1165**
ABERDEEN medical school, **490**—E
ABERRATION, man's tendency toward, (37) 1880
ABORTION, criminal, air embolism with, (132) 283
  criminal, attitude toward patient on whom, has been performed, (5) 349
  criminal, end-results of, (123) 1698
  criminal, solution of problem of, (80) 2074
  death from anesthetic preliminary to performing, **886**—Ml
  febrile, treatment, (29) **1428**
  treatment, (132) 512, (78) 607
ABRAM'S method in aneurysms, (81) 1326
ABSCESS: See also Cellulitis; Felon; Phlegmon
ABSCESS, alveolar, bacteriology of infected root canals and, ***2023**
  appendix, clinical study, (85) 807
  appendix, treatment, (10) 2164
  appendix, typhoid perforation with, (98) 1507
  brain, (126) **512**
  brain, idiopathic, peridental infection factor in, ***2027**
  breast, operative technic, (44) 515
  cerebellum, (21) 273, (33) 1421
  cerebellum, diagnosis and treatment, (10) 2164
  circumtonsillar, (109) 275
  ear, middle, intracranial complications following, (43) 60
  fixation, in puerperal infection treatment, (175) 285
  gangrenous appendicitis with coprolith, septic peritonitis, intestine obstruction, fistula and, (17) 894
  liver, (67) 275
  liver, amebic, emetin in, (131) 1983
ABSCESS, liver, tropical, diagnosis and treatment, (28) 432
  liver, tropical, pleural and pulmonary complications of, (33) 350
  lung, (161) 1608
  lung, acute, and gangrene, (44) **352**
  lung, and bronchiectasis, (31) 350
  lung, artificial pneumothorax in, (80) 1507
  lung, at Massachusetts General Hospital, report of cases, (63) **1424**
  lung, choice of anesthetic in operation for, (9) 802
  neck, of otitic origin, (108) 1888
  orbit, with optic neuritis due to acute ethmoiditis in child, (107) 1698
  perirectal, acute myelitis with, after severe fright, ***1546**
  perirenal, pathogenesis and differential diagnosis of, complicating puerperium, (14) 887
  peritoneal, encysted, two-time treatment of, (120) 510
  peritonsillar, (141) 205
  peritonsillar, pathology of, (63) 1510
  petrous pyramid, cause of paralysis of external rectus muscle, death due to basal meningitis, (5) 974
  pharynx, (22) 1509
  psoas, pneumococcal vaccine in, (18) 354
  skin, multiple, due to sporothrix, 2 cases, (56) 710
  subphrenic, formalin solution injection in empyema and, (41) 1231
  suburethral, in women, (38) **810**
  temporosphenoidal, and chronic otitis media, (31) 706, (30) 1420
  uterus, sensitized bacillus proteus in, (2) **199**
  uterus wall, (67) 202
ABSINTHE, prohibition of, **1044**
ACADEMY of Medicine and the war, 878, **1043**
  of Medicine, Dr. V. Magnan elected vice-president, 593
  of Medicine, Toronto, 43
  of Sciences and war, **1046**
ACAPNIA, anesthesia, and surgery, (58) 352
ACCIDENT cause of death notwithstanding organic weakness of heart, 886—Ml
  industrial, economic prognosis with, (41) 356

ACCIDENT, industrial, to hasten recovery after, (262) 364
insurance, compulsory, for university students, 1866
psychologic aspects of relation of divorce, crime and, to mental defects, (87) 275
railroad, cases, neurologic and psychiatric aspects of, (113) 1698
railroad, loss of life due to, 872—E
to unsuitably employed epileptics, 1971
ACETABULUM, epiphyseal diastasis in, (125) 1421
fracture of, and dislocation of head of femur, mechanism of delivery with, (90) 2080
ACETONE, acetonuria and acidosis, (96) 1982
substances, metabolic relationships of, (42) 606
ACETONEMIA, periodical vomiting with, (87) 813
ACETONURIA, acidosis and acetone, (96) 1982
after spinal anesthesia, (95) 1333
with acute retrobulbar neuritis, *27
ACETYLCHOLIN and ergot preparations, 2136—E
ACHONDRODYSTROPHIA fetalis, (26) 59
fetalis, dwarf growth from, (119) 2082
fetalis, early appearance of centers of ossification and calcification in, (91) 813
ACHONDROPLASIA, (171) 439
and fragilitas ossium, *1996
ACHYLIA gastrica, diastatic ferment in feces in certain diseases of pancreas in, (25) 705
gastrica, organic and functional, (85) 358
ACID, acetyl-salicylic, in asthma, (110) 1334
aliphatic, saturated, purification and melting points of, (74) 969
amino, and hydroxy acids, formation of, from glyoxals in animal organism, (61) 60
amino, importance of liver in urea formation from, (46) 605
betaoxybutyric, pathologic accumulation of, in the body, 35—E
boric, poisoning from dressings of, 593
Carbolic: See Phenol
cerebronic, (85) 970
chondroitin-sulphuric, (69) 61
chromic, for plantar warts, 262—C
citric, formation of glucose from, in diabetes mellitus and phlorhizin glycosuria, (68) 61
diacetic and b-oxybutyric, and acetone in urine, turbidity test for, (43) 605
diacetic, test for, in urine, and of *degree of acidosis in diabetics,* (124) 520
fruit, and blood, 420
glycuronic, significance of, 1857—E
hippuric, synthesis and rate of elimination of, after benzoate ingestion in man, (39) 606
hydrochloric, formation of, in foveolae and on surface of gastric mucous membrane, 505—ab
Intoxication: See Acidosis
lactic, and sugar, behavior of, in blood, (72) 970
lactic, and sugar content of blood, influence of muscular exercise on, (94) 203
lactic, and sugar content of blood, test for, (35) 65
lactic, elimination in urine and connection with carbohydrate *metabolism, (216) 362*
lactic, ferments, vaccines and serobacterins, 1223
lactic, in urine in cyclic vomiting in children, (3) 887
lignoceric, constitution of, (85) 970
nitro-muriatic, for boils and skin infections, (101) 353
nucleic, analysis of effect of nuclein and, on normal antibody, (21) 1985
nucleic, synthesis of, (73) 1887
nucleic, test, in blood diseases, (129) 360
phosphoric, inorganic salts of lime and, nutrient value of, 581—E
ACID, phosphoric, organic, compound of wheat bran, (70, 71) 970
picric, in pellagra, 1598—ab
production of, by bacillus coli group, (95) 2162
Salicylic: See also Salicylates
stains, vital staining with, (54) 1885
sulphuric, conjugated, from tendomucoid, (41) 605
sulphuric, in pyorrhea alveolaris and furunculosis, (88) 275
trichloracetic, in lupus vulgaris, *1352
uric, cholesterin and sugar in blood, quantitative estimation of, (70) 509
uric, color test for, in urine, (117) 714
uric, content of blood, (43) 2072
uric, content of blood in diagnosis, (86) 435
uric, diathesis, lithium salts in, 184
uric, overproduction, (66) 197'
uric, protein intake and formation of, (80) 970
volatile fatty, relation to disturbance in metabolism in intestine of normal infants and those with gastro-intestinal disturbances, (227) 363
ACIDITY, alkalinity and anesthesia, 2069—ab
of fresh cow's milk, cause of, and method for determining, (65) 1232
of gastric juice in man, 580—E
ACIDOSIS, acetone and acetonuria, (96) 1982
acute, 1296—T
blood in, from quantitative point of view, *397, (79) 970
chronic myocardial disease terminated by, (8) 200
determination of, and clinical availability in diabetes, (112) 70
diabetic, estimation of, by determination of carbon-dioxid tension in air in lungs, (111) 70
diabetic, unique case of, 2297—E
in kidney and heart disease, (43) 968
in omnivora and herbivora and relation to protein shortage, (17) 2259
kidney lesions of cholera and, (4) 1053
respiration in, *318
test for diacetic acid in urine and of degree of, in diabetics, (124) 520
ACNE rosacea, *roentgenotherapy of* keratitis from, (97) 1243
Swiss sulphur mineral water in eczema and, (34) 1141
vaccine, 1204, 1479
ACOUSTIC nerve tumor, 6 operative cases, (82) 1797
reflexes in decerebrate cat, (20) 2070
ACROMEGALY, (22) 200
and splanchnomegaly with hypophysis tumor in male cadaver of thirty-two, (36) 1141
glycosuria induced in dog by intravenous injection of cerebrospinal fluid from patient with, (67) 434
metabolism in, (35) 1135
tabes and, (125) 2170
ACTINOMYCES, cladothrix, and streptothrix, differentiation of, (68) 1511
ACTINOMYCOSIS, (59) 1885
lung, primary, in child of ten, (1) 887
shoulder, exarticulation for, (79) 202
with metastases, (40) 1330
ADAMS-STOKES Disease: See *Heart-Block*
ADDISON'S DISEASE aggravated by ascaris lumbricoides and hysteria, (20) 1236
epinephrin in, dangerous action of, (59) 2167
fatal male-fern poisoning in clinically latent, (47) 2264
hematin in blood in, (49) 1510
normal sugar content of blood in, (73) 977
typical and atypical cases of, 1134—ab
ADENITIS, cervical, (94) 1607, 2291—T
ADENOCARCINOMA of nose, (24) 273
ADENOIDS, (62) 606, 2291—T
ADENOIDS and tonsil operation, evolution of, and Beck's procedure, (118) 510
feeblemindedness and tonsils, (73) 1881
recurrence and growth of, influence of diet on, (115) 198
ADENOMAS of umbilicus, (65) 202
ADENOMYOMA of rectovaginal septum, *385
uterus, migratory, (15) 1610
uterus, with adenomyomata in *falloplan tube and sigmoid,* (16) 1610
ADHESIONS, abdomen, right, (67) 1606
antiperistalis as result of, (64) 1238
cutting, in preparation for artificial pneumothorax, (83) 1797
intestinal, (131) 1234
pelvic, prevention and treatment of, (111) 510
peritoneal, amniotic membrane in preventing, (154) 277, 1229—ab
peritoneal, nature of, (20) 894
peritoneal, prophylaxis of, (36) 1238
postoperative, silk-tendon plastics to prevent, experimental study, (106) 511
ADIPOSIS and lipomatosis, (122) 971
dolorosa, (246) 363, (69) 516, (103) 1327
ADOLESCENCE, psychosis of, (5) 58
ADRENALIN: See Epinephrin
ADRENALS, (1) 354
changes in, in disease, 1955—E
epinephrin content of, markedly reduced during peritonitis, (34) 976
functions of interrenal portions of, (16) 1504
functions of, newer views, 322—E
functions of thyroid and, (69) 1326
hypernephroma of cortex, cause of precocious development of external genitals, *2286
in acute infections, (116) 1426
in delirium tremens, morphologic and chemical study of double *refractive fats in,* *2186
innervation of, (115) 282
insufficiency during pregnancy, (44) 201
insufficiency, syndrome of, *2203
kidney function and, 2293—E
pathologic changes in, (42) 1700
pulse-rate and, *316
surface tension of blood serum after operations on, (249) 363
tumor in woman accompanied by development of male characters, (50) 201
ADVERTISEMENTS, advertising men determined to abolish fraud in, 409—E
clean, and Ohio State Medical Journal, 872—E
dishonest, effect of, on honest advertising, 953—E
ethical, and hints to certain medical journals, 885—ab
fraudulent, in Life, 1211—E, 1219—P
in Boston Medical and Surgical Journal, 250—E
in New Orleans Medical and Surgical Journal, 249—E
lowered value of first class, because of proximity to fraudulent advertising, 1120—E
newspaper, and editorials, 2148—P
nostrum, in Big Six medical journals, 1594—P
obnoxious, conviction for publishing, affirmed, 966—Ml
pharmaceutical, on card catalogue system, (65) 613
unauthorized insertion of, 1779—C
AGAR-AGAR crackers, recipe for, 1224
AGAR-LAC refused recognition, 1777—P
AGED: See also Geriatrics; Senility
AGED, neglect of, (73) 1137
AGGLUTINATION in jaundice sign *of complicating typhoid,* (71) 898
phenomena in lobar pneumonia, (25) 2259
reaction after antityphoid inoculation, (20) 709
titer in infectious diseases, (77) 813
AGGRESSINS *in appendicitis and* peritonitis, (41) 432, (44) 710
AINHUM, bilateral, (23) 1324
AIR baths in tuberculosis, 347—ab
carbon dioxid tension of expired, device to estimate, (51) 515
contamination, 2131—T
embolism in brain, (87) 358
embolism with criminal abortion, (132) 283
fresh, and proper food in tuberculosis, (44) 805
hospital, studying condition of, *1621
laboratory experiments with, *1625
of railway tunnels, 582—E
we breathe, (40) 1055
AIRSHIP, arrow-like missile flung from, (52) 1613
ALABAMA medical news, 250, 328, 1585, 2050, 2236
state board of medical examiners increases preliminary requirements, 503
ALBEE'S operation in Pott's paralysis, (68) 509
ALBORUM refused recognition by Council, 2148—P
ALBUMIN, *colorimetric determination of,* (57) 1613
content in differentiation of effusions and transudates, (109) 282, (55) 356
egg, infantile sensitization to, (79) 1982
foreign, increased permeability of infant's intestine to, (140) 283
in blood in tuberculous children, (223) 363
in sputum, (110) 518
in sputum and lymphocytic picture *in early recognition of* lung tuberculosis, *2283
in sputum in *tuberculosis,* (43) 1429, (4) 1699, (92) 1881, (10) 1979, (63) 1988
in urine, determination of, by Aufrecht's and Tsuchiya's technics, (56) 896
in urine, quantitative determination of, (44) 606, (105) 1425
katabolism in fever and work, amount of, (125) 360
metabolism and total metabolism in cancer, (69) 977
metabolism in experimental pancreas diabetes, (85) 2169
Milk: See Milk, Albumin
plant, protective *ferments against,* (55) 515
ALBUMINOIDS, diastasic hydrolysis of, action of artificial organic stains on, (149) 72
ALBUMINURIA, etiology of eclampsia and, and accidental hemorrhage, (15) 1884
in pregnancy, treatment of, *157
induced transient, (106) 70
orthostatic, (37) 432, 1411
severe reaction with, to dose of purgen, (203) 440
ALCOHOL, amblyopia due to tobacco and, (113) 1426
atypical reaction to, and *medico-legal* importance, (134) 2170
autolysis inhibited by, (63) 1232
beverages containing, as food or medicine, fallacy of prescribing, (126) 1139
food and war, (88) 1512
forbidden in German army, 1216
in milk and urine, 883
inhalation of, and viscosity *of* blood, (14) 1604
inherited defects due to, 1400—E
injections for prolapse of rectum, (96) 1242
injections in coccygodynia, (55) 1137
injections in trifacial and other neuralgias, (66) 197, *1725
injections into gasserian ganglion, *alternating hemiplegia* following, (118) 1244
International Anti-Alcoholic Congress, 339—C
life expectancy, *tobacco and,* (80) 1607
mental and nervous diseases and, (77) 806, (50) 1790
Methyl: See *Methyl-Alcohol*
place and power, (101) 510
problem, (127) 276
procreation under influence of, (120) 616
prohibition of sale of drinks containing, in France, 1775
psychosis due to, and psychopathic drinkers, (53) 1790
public health and, 1417—ab
syphilis and tobacco as factors in *intermittent* claudication, (70) 280

ALCOHOL, tests to determine, 1410
  truth about, (125) 2075
  vagrancy and, 324—E
  was engineer's mind impaired by? (105) 1607
  Wood: See Methyl-Alcohol
ALCOHOLISM, (129) 63
  and drug addiction among physicians in Alabama, (142) 431
  and morbidity, (198) 286, (88) 1607
  chronic, (44) 1880
  chronic, fat in liver in, (93) 1616
  dyspepsia with chronic, (197) 286
  epileptoid convulsions in, and genuine epilepsy, (66) 1880
  in old age, (58) 1982
  infant mortality and, 335
  neuroses due to, (60) 1506
  treatment, modern, (21) 705
ALETRIS cordial, 1411
ALEXANDER-ADAMS operation, 182 cases, (65) 1060
ALEXIN content of blood serum and phenomena of anaphylaxis in tuberculous children, (110) 2169
ALIENS, feeble-minded, medical examination of, (3) 1878
  infectious diseases among, (88) 197
ALIMENTARY TRACT: See Gastro-Intestinal Tract
ALKALI, effect of, on permeability, (13) 2259
  in diabetes, (126) 283
ALKALOIDS, (108) 429
  from ductless glands, organotherapy with, (74) 435
ALKAPTONURIA, (97) 1063
ALLANTOIN, (69) 969
ALLBUTT, Sir Clifford, on medicine of future, 414
ALLERGY: See Anaphylaxis; Immunity
ALLIS inhaler, aid in use of, (136) 971
ALTITUDE, action of, on perception and will power of aviators, (95) 203
  lymphocyte increase and, (51) 1423
ALVEOLAR abscess, bacteriology of infected root canals and, *2023
AMBARD'S formula in determination of renal function, (130) 616, (113) 814, (85) 1615
AMBLYOPIA due to tobacco and alcohol, (113) 1426
AMBULANCE company, (77) 197
  motor, 1589, (100) 1881
  transformation of automobile into, 1313—ab
  university gives, 1682
  work, American, at Paris, 1964, 2240
  work in France, (28) 1610
AMEBAS: See also Entamebas
AMEBAS in mouth and pyorrhea alveolaris, emetin treatment, *1746, (100) 1982
  infection of genito-urinary tract by, (22) 1324
  liver lesions with, 7 and 18 years after latent infections, 2 cases, (33) 810
AMEBIASIS: See Dysentery, Amebic
AMENORRHEA, intra-uterine pessary in treatment of, (108) 814
  pituitary extract in, (85) 1241
AMERICA, early human remains in, 1116—E
AMERICAN Academy of Medicine elects officers, 174
  Academy of Ophthalmology and Oto-Laryngology, meeting of, 792, 1215, 1404
  Ambulance Society, Paris, 1964, 2240
  ambulance surgeons, daring of, 2239
  assistance for France, 1591
  Association for Study and Prevention of Infant Mortality, meeting of, 331, 1124, 1964
  Association for Study of Feeble-Minded meets, 41
  Association of Anesthetists, meeting of, 41, 695
  Association of Medical Directors meets, 42
  Association of Medical Milk Commissioners meets, 42
  Association of Obstetricians and Gynecologists, meeting of, 1215, 1319—ab
  Bureau of Medical Research, Donald McCormick, swindler, soliciting subscriptions to, 1041
  Climatological Association meets, 174, 346
AMERICAN Electro-Therapeutic Association, meeting of, 695, 1123
  Hospital Association, meeting of, 695, 956
  hospital in France, 1042
  hospital in Paris, help asked for, 1688—C
  hospital in Petrograd, 1589
  hospital, work of, 1683
  Journal of Clinical Medicine, 1594—P
  Journal of Surgery, 1594—P
  Malted Food Company, 1494—P
AMERICAN MEDICAL ASSOCIATION, Alexander Primrose elected honorary fellow, 109
  and prosecution of quacks, 171—E
  Atlantic City session, 38—E
  Atlantic City session, addresses of welcome, 112
  auditor's report, 79
  classification of milk standards proposed by New York Milk Committee and endorsed by, 485—E
  executive committee for San Francisco session, 1865
  house of delegates, 73, 111
  index to Journal of, 2292—E
  medal presented to Surgeon-General Gorgas by, 115
  meeting in San Francisco in 1915, 36—E
  president-elect, W. L. Rodman, 37—E
  reference committees, 73
  registration at Atlantic City, 130
  report of board of trustees, 74, 102
  report of committee on amendments to the constitution and by-laws, 103, 105, 109
  report of committee on awards on scientific exhibit, 111
  report of committee on hygiene and public health, 109
  report of committee on legislation and political action, 109
  report of committee on medical education, 102
  report of committee on reports of officers, 103, 105
  report of committee on section and section work, 107
  report of committee to confer with the National Educational Association, 99
  report of council on health and public instruction, 91, 107
  report of council on medical education, 83
  report of judicial council, 80, 106
  report of secretary, 73
  report on anesthesia, 91
  report on cancer, 99
  report on conservation of vision, 94
  report on expert testimony, 100
  report on memorial to medical officers who lost their lives in the civil war, 101
  report on mode of commemorating the completion of the Panama Canal, 101, 108
  report on nomenclature and classification of diseases, 90
  report on protection of medical research, 94
  report on public health education among women, 96
  report on Red Cross medical work, 88
  report on resuscitation from mine gases, 93
  report on scientific exhibit, 89
  report on uniform regulation of membership, 98
  scientific program, proposal concerning preparation of, 105
  section on dermatology, 125
  section on diseases of children, proceedings of, 120
  section on genito-urinary diseases, proceedings of, 128
  section on hospitals, proceedings of, 129
  section on nervous and mental diseases, proceedings of, 123
  section on obstetrics, gynecology and abdominal surgery, proceedings of, 117
  section on ophthalmology, proceedings of, 118
  section on orthopedic surgery, proceedings of, 129
  section on pathology and physiology, proceedings of, 123
  section on pharmacology and therapeutics, proceedings of, 121
  section on practice of medicine, proceedings of, 115
AMERICAN MEDICAL ASSOCIATION section on preventive medicine and public health, proceedings of, 126
  section on stomatology, proceedings of, 123
  section on surgery, proceedings of, 116
  section transactions, 130
  standards of council on medical education, 666
  treasurer's report, 79
AMERICAN Medicine, 1594—P
  organization for protection of children and girls during war, 1044
  Public Health Association, meeting of, 589, 2239
  Red Cross: See Red Cross, American.
  Red Cross Magazine to be published monthly, 2144
  Roentgen-Ray Society, meeting of, 352, 1227—ab, 1321—ab
  School Hygiene Association, meeting of, 1215, 1309
  surgeons commissioned in Russian army, 1682
  Urological Association meets, 42
  Women's Hospital at Paignton, 1867
  Women's Hospital in London, 1042
AMETROPIA, correction of, and effect on heterophoria, *572
AMINO-ACID: See Acid, Amino
AMINO-AZOBENZOLS, epithelium proliferating action of, (43) 1238
AMINS and urticaria, 1861—E
  in common foods, 1398—E
AMMONIA and nitrogen excretion of urine, on different diets, especially rice diet, (66) 977
  content of blood, effect of acute destructive lesions of liver on its efficiency in reduction of, (67) 970
  rate of disappearance of, from blood in normal and thyroidectomized animals, (30) 605
  salts and urea, utilization by organism of such nitrogenous compounds as, 1768—E
AMNIOTIC membrane, postoperative peritoneal adhesions prevented by, (154) 277, 1229—ab
AMPUTATION, (22) 967, (112) 1698
  aperiosteal, *1149
  cinematoplastic, 2 cases, (13) 2309
  early, for compound and comminuted fractures, (61) 2073
  foot, in field, (80) 1887
  hand, (23) 967
  leg, (24) 967, (23) 2310
AMYLASE, urinary and blood, (18) 1604
AMYLOID disease, low arterial blood-pressure in cancer of tongue with, (17) 1329
ANACHLORHYDRIA with gall-bladder calculi, (52) 433
ANAEROBES, obligate, in gastro-intestinal tract of infants, (30) 1985
  vibrio isolated from acute bronchitis, (30) 1504
ANAGNOSTAKIS' operation for trichiasis, (29) 1700
ANALGESIA: See Anesthesia
ANALGESICS, inflammation arrested by, (109) 615
ANAPHYLATOXIN and virulence, (23) 2259
  formation, mechanism of, (53) 428
  immunization of animals with, (75) 1606
  production of, (113) 359
ANAPHYLAXIS, (52) 275, (41) 706, (78) 970
  and status lymphaticus in relation to intensified types of diseases in infants and children, (14) 432, (13) 894
  bee-stings and, (30) 1793
  eosinophilia in, (99) 1982
  eosinophilia in diatheses and, (21) 1141
  from antitetanus serum, danger of, (33) 2312
  in asthma, (45) 612, (18) 1421
  in tuberculous children and alexin content of blood serum, (110) 2169
  intoxication, blood platelets responsible for, (57) 1886
  lipoids as inhibitors of, (44) 1789
  ocular, experimental study of, (115) 1608, (110) 1881
  passively acquired, (95) 358
  skin-graft for burns followed by, *775
  skin reactions in hay fever due to pollen, (24) 1880
ANAPHYLAXIS, symptoms of, and allergic intracutaneous reaction, (91) 2163
  therapeutic utilization of, 266—ab
  with lipoids of tubercle bacillus, experiment in, (46) 707
ANASTOMOSIS, arteriovenous, for threatened gangrene, (125) 63, (12) 803, (53) 1325
  intestinal, technic of, with reference to modification of Maunsell's method, (15) 2070
  of gall-bladder to stomach, 1320—ab, (19) 2070
  thumb forceps for, (47) 1421
ANATOMIC structure and function, *521
ANATOMY, knowledge of, needed, 1743—ab
  of nose, (117) 1244
  physiologic, of infant's stomach, observations on, noted in course of use of balloon-duodenal catheter, (3) 193
  terminology, (14) 1236
ANEMIA among Indian troops in Singapore, (23) 1700
  aplastic, (45) 968
  blood-pressure in, in infants, (2) 1502
  cholesterin in blood and resisting power of red corpuscles in, (123) 1706
  diagnosis and treatment of, in young children, (46) 612
  effect of, on pathological processes in acute ulcer of stomach, (39) 1700
  gastro-intestinal diseases and severe, (5) 1323
  hemolytic, function of spleen with reference to hemolysis and, (48) 969
  in rachitic twins, (33) 514
  Leishman: See also Kala-Azar; Leishmaniasis
  megalocytes in, (23) 2262
  pernicious, in children, (82) 712
  pernicious, neutrophilic blood-picture in, (16) 1324
  pernicious, nitrogen metabolism before and after splenectomy in, (57) 2161
  pernicious, progressive, (70) 1614, (106) 2081
  pernicious, psychosis in, (81) 197, *936
  pernicious, sore gums and tongue early sign of, (81) 812
  pernicious, splenectomy for, (73) 197, (49) 1795, (138) 1882
  pernicious, treatment of, (139) 206
  respiratory quotient in chronic, (120) 282
  salvarsan in small doses, in secondary, and in nutritional disturbances, (86) 517
  secondary, buttermilk and Green's treatment of 3 cases of, (47) 889
  spleen enlargement with, (38) 2076
  splenic, chronic, (131) 198
  splenic, early splenectomy, necropsy 2 years later, 1692—ab
  splenic, etiology of, *2225
  splenic, familial, with infantilism, (2) 893
  splenic, in children, (94) 1888
  splenic, leukemia and hemolytic jaundice, (99) 2081
  splenic, splenectomy for, (126) 1328, (117) 1426, (12) 1609, (18) 2165, (48) 2261
  subcutaneous medication in, (132) 431
  treatment, (170) 361
  tuberculous, reaction of bone marrow in, (20) 1141
ANENCEPHALIA, etiology, (19) 58
ANESTHESIA, (36) 2076
  acapnia, surgery and, (58) 352
  acidity, alkalinity and, 2069—ab
  adrenalin-cocain surface, (97) 1507
  anesthetizer, surgeon and, (31) 196
  apparatus for, sterilization of, 1596—C
  brachial plexus, (45) 197
  chloroform, by intratracheal insufflation, (30) 2165
  chloroform, heart fibrillation and, (11) 1427
  dangers of, experiments defining, (83) 1056
  ether, (93) 62, (92) 1233
  ether and chloroform, effects of, on protein contents of blood serum of rabbits, (93) 970
  ether and oil for rectal, (77) 607, (45) 1325, (92) 1425
  ether, by intratracheal insufflation, (31) 2165

ACCIDENT, industrial, to hasten recovery after, (262) 364
  insurance, compulsory, for university students, 1866
  psychologic aspects of relation of divorce, crime and, to mental defects, (87) 275
  railroad, cases, neurologic and psychiatric aspects of, (113) 1698
  railroad, loss of life due to, 872—E
  to unsuitably employed epileptics, 1971
ACETABULUM, epiphyseal diastasis in, (125) 1421
  fracture of, and dislocation of head of femur, mechanism of delivery with, (90) 2080
ACETONE, *acetonuria and acidosis*, (96) 1982
  substances, metabolic relationships of, (42) 606
CETONEMIA, periodical vomiting with, (87) 813
ACETONURIA, acidosis and acetone, (96) 1982
  after spinal anesthesia, (95) 1333
  with acute retrobulbar neuritis, *27
ACETYLCHOLIN and ergot preparations, 2136—E
ACHONDRODYSTROPHIA fetalis, (26) 59
  fetalis, dwarf growth from, (119) 2082
  fetalis, early appearance of centers of ossification and calcification in, (91) 813
ACHONDROPLASIA, (171) 439
  and fragilitas ossium, *1996
ACHYLIA gastrica, diastatic ferment in feces in certain diseases of pancreas in, (25) 705
  gastrica, organic and functional, (85) 358
ACID, *acetyl-salicylic, in asthma*, (110) 1334
  aliphatic, saturated, purification and melting points of, (74) 969
  amino, and hydroxy acids, formation of, from glyoxals in animal organism, (61) 60
  amino, *importance of liver in urea formation from*, (46) 605
  betaoxybutyric, pathologic accumulation of, in the body, 35—E
  boric, poisoning from dressings of, 593
  Carbolic: See Phenol
  cerebronic, (85) 970
  chondroitin-sulphuric, (69) 61
  chromic, for plantar warts, 262—C
  citric, formation of glucose from, in diabetes mellitus and phlorhizin glycosuria, (68) 61
  diacetic and b-oxybutyric, and acetone in urine, turbidity test for, (43) 605
  diacetic, test for, in urine, and of degree of acidosis in diabetics, (124) 520
  fruit, and blood, 420
  glycuronic, significance of, 1857—E
  hippuric, synthesis and rate of elimination of, after benzoate ingestion in man, (39) 606
  hydrochloric, formation of, in foveolae and on surface of gastric mucous membrane, 505—ab
  Intoxication: See Acidosis
  lactic, and sugar, behavior of, in blood, (72) 970
  lactic, and sugar content of blood, *influence of muscular exercise on*, (94) 203
  lactic, and sugar content of blood, test for, (35) 65
  lactic, elimination in urine and connection with carbohydrate metabolism, (216) 362
  lactic, ferments, vaccines and *serobacterins*, 1223
  lactic, in urine in cyclic vomiting in children, (3) 887
  lignoceric, constitution of, (85) 970
  nitro-muriatic, for boils and skin infections, (101) 353
  nucleic, analysis of effect of nuclein and, on normal antibody, (21) 1985
  nucleic, synthesis of, (73) 1887
  nucleic, test, in blood diseases, (129) 360
  phosphoric, inorganic salts of lime and, nutrient value of, 581—E
ACID, phosphoric, organic, compound of wheat bran, (70, 71) 970
  picric, in pellagra, 1598—ab
  production of, by bacillus coli group, (95) 2162
  Salicylic: See also Salicylates
  stains, vital staining with, (54) 1885
  sulphuric, conjugated, from tendomucoid, (41) 605
  sulphuric, in pyorrhea alveolaris and furunculosis, (88) 275
  trichloracetic, in lupus vulgaris, *1352
  uric, cholesterin and sugar in blood, quantitative estimation of, (70) 509
  uric, color test for, in urine, (117) 714
  uric, content of blood, (43) 2072
  uric, content of blood in diagnosis, (86) 435
  uric, diathesis, lithium salts in, 184
  uric, overproduction, (66) 197
  uric, protein intake and formation of, (80) 970
  volatile fatty, relation to disturbance in metabolism in intestine of normal infants and those with gastro-intestinal disturbances, (227) 363
ACIDITY, alkalinity and anesthesia, 2069—ab
  of fresh cow's milk, cause of, and method for determining, (65) 1232
  of gastric juice in man, 580—E
ACIDOSIS, acetone and acetonuria, (96) 1982
  acute, 1296—T
  blood in, from quantitative point of view, *397, (79) 970
  chronic myocardial disease terminated by, (8) 200
  determination of, and clinical availability in diabetes, (112) 70
  diabetic, estimation of, by determination of carbon-dioxid tension in air in lungs, (111) 70
  diabetic, unique case of, 2297—E
  in kidney and heart disease, (43) 968
  in omnivora and herbivora and relation to protein shortage, (17) 2259
  kidney lesions of cholera and, (4) 1053
  respiration in, *318
  test for diacetic acid in urine and of degree of, in diabetics, (124) 520
ACNE rosacea, roentgenotherapy of keratitis from, (97) 1243
  Swiss sulphur mineral water in eczema and, (34) 1141
  vaccine, 1204, 1479
ACOUSTIC nerve tumor, 6 operative cases, (82) 1797
  reflexes in decerebrate cat, (20) 2070
ACROMEGALY, (22) 200
  and splanchnomegaly with hypophysis tumor *in male cadaver* of thirty-two, (36) 1141
  glycosuria induced in dog by intravenous injection of cerebrospinal fluid from patient with, (67) 434
  metabolism in, (35) 1135
  tabes and, (125) 2170
ACTINOMYCES, cladothrix, and streptothrix, differentiation of, (68) 1511
ACTINOMYCOSIS, (59) 1885
  lung, primary, in child of ten, (1) 887
  shoulder, exarticulation for, (79) 202
  with metastases, (40) 1330
ADAMS - STOKES Disease: See Heart-Block
ADDISON'S DISEASE aggravated by ascaris lumbricoides and hysteria, (20) 1236
  epinephrin in, dangerous action of, (59) 2167
  fatal male-fern poisoning in clinically latent, (47) 2264
  hematin in blood in, (49) 1510
  normal sugar content of blood in, (73) 977
  typical and atypical cases of, 1134—ab
ADENITIS, cervical, (94) 1607, 2291—T
ADENOCARCINOMA of nose, (24) 273
ADENOIDS, (62) 606, 2291—T
ADENOIDS and tonsil operation, evolution of, and Beck's procedure, (118) 510
  feeblemindedness and tonsils, (73) 1881
  recurrence and growth of, influence of diet on, (115) 198
ADENOMAS of umbilicus, (65) 202
ADENOMYOMA of rectovaginal septum, *385
  uterus, migratory, (15) 1610
  uterus, with adenomyomata in fallopian tube and sigmoid, (16) 1610
ADHESIONS, *abdomen, right*, (67) 1606
  antiperistalis as result of, (64) 1238
  cutting, in preparation for artificial pneumothorax, (83) 1797
  intestinal, (131) 1234
  pelvic, prevention and treatment of, (111) 510
  peritoneal, amniotic membrane in preventing, (154) 277, 1229—ab
  peritoneal, nature of, (20) 894
  peritoneal, *prophylaxis of*, (36) 1238
  postoperative, silk-tendon plastics to prevent, *experimental study*, (106) 511
ADIPOSIS and lipomatosis, (122) 971
  dolorosa, (246) 363, (69) 516, (103) 1327
ADOLESCENCE, psychosis of, (5) 58
ADRENALIN: See Epinephrin
ADRENALS, (1) 354
  changes in, in disease, 1955—E
  epinephrin content of, markedly reduced during peritonitis, (34) 976
  functions of interrenal portions of, (16) 1504
  functions of, newer views, 322—E
  functions of thyroid and, (69) 1326
  hypernephroma of cortex, cause of *precocious development* of external genitals, *2286
  in acute infections, (116) 1426
  in delirium tremens, morphologic and chemical study of double refractive fats in, *2186
  innervation of, (115) 282
  insufficiency during pregnancy, (44) 201
  insufficiency, syndrome of, *2203
  kidney function and, 2293—E
  pathologic changes in, (42) 1700
  pulse-rate and, *316
  surface tension of blood serum *after operations on*, (249) 363
  tumor in woman accompanied by development of male characters, (50) 201
ADVERTISEMENTS, advertising men determined to abolish fraud in, 409—E
  clean, and Ohio State Medical Journal, 872—E
  dishonest, effect of, on honest advertising, 953—E
  ethical, and hints to certain medical journals, 885—ab
  fraudulent, in Life, 1211—E, 1219—P
  in Boston Medical and Surgical Journal, 250—E
  in New Orleans Medical and Surgical Journal, 249—E
  lowered value of first class, because of proximity to fraudulent advertising, 1120—E
  newspaper, and editorials, 2148—P
  nostrum, in Big Six medical journals, 1594—P
  obnoxious, conviction for publishing, affirmed, 966—Ml
  pharmaceutical, on card catalogue system, (65) 613
  unauthorized insertion of, 1779—C
AGAR-AGAR crackers, recipe for, 1224
AGAR-LAC refused recognition, 1777—P
AGED: See also Geriatrics; Senility
AGED, neglect of, (73) 1137
AGGLUTINATION in jaundice sign of complicating typhoid, (71) 898
  phenomena in lobar pneumonia, (25) 2259
  reaction after antityphoid inoculation, (20) 709
  titer in infectious diseases, (77) 813
AGGRESSINS in appendicitis and *peritonitis*, (41) 432, (44) 710
AINHUM, bilateral, (23) 1324
AIR baths in tuberculosis, 347—ab
  carbon dioxid tension of expired, device to estimate, (51) 515
  contamination, 2131—T
  embolism in brain, (87) 358
  embolism with *criminal abortion*, (132) 283
  fresh, and proper food in tuberculosis, (44) 805
  hospital, studying condition of, *1621
  laboratory experiments with, *1625
  of railway tunnels, 582—E
  we breathe, (40) 1055
AIRSHIP, arrow-like missile flung from, (52) 1613
ALABAMA medical news, 250, 328, 1585, 2050, 2236
  state board of medical examiners increases preliminary requirements, 503
ALBEE'S operation in Pott's paralysis, (68) 509
ALBORUM refused recognition by Council, 2148—P
ALBUMIN, colorimetric determination of, (57) 1613
  content in differentiation of effusions and transudates, (109) 282, (55) 356
  egg, infantile sensitization to, (79) 1982
  foreign, increased permeability of infant's intestine to, (140) 283
  in blood in tuberculous children, (223) 363
  in sputum, (110) 518
  in sputum and lymphocytic picture in early recognition of lung tuberculosis, *2283
  in sputum in tuberculosis, (43) 1429, (4) 1699, (92) 1881, (10) 1979, (63) 1988
  in urine, determination of, by *Aufrecht's and Tsuchiya's* technics, (56) 896
  in urine, quantitative determination of, (44) 606, (105) 1425
  katabolism in fever and work, *amount of*, (125) 360
  metabolism and total metabolism in cancer, (69) 977
  metabolism in experimental pancreas diabetes, (85) 2169
  Milk: See Milk, Albumin
  plant, protective ferments against, (55) 515
ALBUMINOIDS, diastasic hydrolysis of, action of artificial organic stains on, (149) 72
ALBUMINURIA, etiology of eclampsia and, *and accidental hemorrhage*, (15) 1884
  in pregnancy, treatment of, *157
  induced transient, (106) 70
  orthostatic, (37) 432, 1411
  severe reaction with, to dose of purgen, (203) 440
ALCOHOL, amblyopia due to tobacco and, (113) 1426
  atypical reaction to, and medicolegal importance, (134) 2170
  autolysis inhibited by, (63) 1232
  beverages containing, as food or medicine, fallacy of prescribing, (126) 1139
  food and war, (88) 1512
  forbidden in German army, 1216
  in milk and urine, 883
  inhalation of, and viscosity of blood, (14) 1604
  inherited defects due to, 1400—E
  injections for prolapse of rectum, (96) 1242
  injections in coccygodynia, (55) 1137
  injections in trifacial and other neuralgias, (66) 197, *1725
  injections into gasserian ganglion, *alternating hemiplegia* following, (118) 1244
  International Anti-Alcoholic Congress, 339—C
  life expectancy, tobacco and, (80) 1607
  mental and nervous diseases and, (77) 806, (50) 1790
  Methyl: See Methyl-Alcohol
  place and power, (101) 510
  problem, (127) 276
  procreation under influence of, (120) 616
  prohibition of sale of *drinks containing, in France*, 1775
  psychosis due to, and psychopathic drinkers, (53) 1790
  public health and, 1417—ab
  syphilis and *tobacco as factors* in intermittent claudication, (70) 280

APPARATUS for microchemical test for sugar in blood, *1667
  for neurovascular training, (68) 606
  for suction and aspiration in empyema treatment, 191—ab
  for taking light fields, (39) 2072
  for transfusion of blood, further development of, (132) 892
  formaldehyd sterilizer, simple, practical, *483
  Killian method of suspension, *1923
  nitrous, oxid-oxygen anesthesia, *1475
  perineal board for perineal prostatectomies, genito-urinary and rectum surgery, *1476
  Roentgen, in army, (54) 1701
  sliding splint of plaster of Paris for fractured femur, (124) 510
  splints, folding, for battle-field, (179) 285
  splints, Hacker's, for fracture of upper end of humerus, (118) 198
  table attachment for surgery of neck, face and throat, *483
  thermoesthesiometer, (143) 1698
  timing system, (143) 1698
  venous pressure, (143) 1698
APPENDECTOMY, experiences with, (74) 202
  gas pains after, relief of, (107) 1881
  opening abdomen for, (2) 1328
  questions of correct language, 2063
APPENDICITIS, (162) 361, (71) 429, *757, (6) 1328, (21) 1879
  acute, (16) 1141
  acute, diagnosis, treatment and complications, (53) 710, (80) 1982
  acute, prognosis of, (118) 1327
  acute, secondary multiple echinococcosis of peritoneum complicating, (38) 1325
  acute suppurative, analysis of 100 cases, (20) 432
  aggressins in peritonitis and, (41) 432, (44) 710
  and status lymphaticus, (8) 1609
  chronic, (99) 708
  chronic, and inguinal hernia, (56) 202, (39) 356
  chronic, and torsion of omentum, (55) 811
  chronic, difference in morphology of blood in stomach and duodenum ulcer and in, (9) 1604
  chronic, isolated, from schistosomum eggs, (48) 2077
  colonic inflation in diagnosis of chronic, (9) 1324
  conditions simulating chronic, (5) 1328
  diagnosis, cardinal symptoms in, (42) 1325
  early operation and closure of wound without drainage, (52) 356
  etiology of stomach ulcer and, (15) 2075
  fecal concrements cause of, 9 cases, (106) 2169
  fibroplastic, (108) 436
  gangrenous, with coprolith, septic peritonitis, rupture of intestine, and fistula, complete recovery, (17) 894
  geographic distribution of, (43) 709
  Germany and Austria desire to exterminate term, 1405
  helminths and, (52) 515, (48) 1239
  hematuria with, (110) 1990
  in children, (121) 1608
  in eastern Asia, (58) 1060
  in infants, (51) 60
  in inguinal hernia, (93) 1989
  in pregnancy, acute, (201) 362
  intussusception and, (34) 200
  leukocyte count, postoperative, with reference to, (135) 1234
  lung tuberculosis complicating operations for, (113) 1327
  medical treatment of, (77) 275
  megacolon with, (71) 1797
  mistaken for right pyosalpinx, (54) 890
  mortality and morbidity of, 1878—ab
  muscle sign of chronic, (90) 1146
  pain on pulling right spermatic cord as sign of, (77) 1887
  pelvic complications of, 300 cases, *755
  secondary, perforation of bladder from chronic ulceration with, (36) 894
APPENDICITIS, suppurative, technic for operation, based on postoperative hemorrhage, (140) 1883
  symptomatology, unusual, (81) 708
  traumatic, (184) 286
  traumatic, microscopic, lesions of mucosa in, (107) 2163
APPENDICOSTOMY in chronic ulcerative coloproctitis, (104) 1138
APPENDIX, abnormal location of, (28) 1141, (84) 1797
  abscess, clinical study, (85) 807
  abscess, treatment of, (9) 2164
  abscess, typhoid perforation with, (98) 1507
  autotoxemia and lesions of large intestine including, treatment of, (126) 431
  cancer of cecum and, (46) 197, (78) 1791
  diseases of cecum, sigmoid flexure and, (76) 711
  diseases of genitalia and, (87) 69
  foreign body in, *867
  hernia of, (115) 2170
  inflation of, *867
  interesting appendices, (102) 1697
  irrigation through, in colitis, (66) 1702
  pus, treatment of, (143) 431
  radiotherapy of, technic for, (52) 1238
  roentgenoscopy of, (65) 509, (79) 517, (23) 1141, 1228—ab, (14) 1879
  surgery of, (112) 436
APPETITE, pathology of, (61) 1701
  systematic impairing of, in treatment of obesity, 1599—ab
APRAXIA, (26) 1237
ARACHNOID villi, pathways of escape from subarachnoid spaces with reference to, (44) 1506
ARENICOLA larvae, reversibility of geotropism of, by salts, (9) 1503
AREQUIPA sanatorium, sociologic and economic experiment in care of tuberculous wage earning girls in, (41) 889
ARHYTHMIA, cardiac, (76) 1790, 2159—ab
  cardiac, in diphtheria, (4) 1426
  ectopic systole, cardiac, graphic studies in, (90) 2074
  in sinus with high blood-pressure, (34) 514
  murmurs in, of auricle, (63) 977
  periodical, (75) 978
  perpetual, (119) 282
ARIZONA medical news, 409
  state board April report, 1972
  state board July report, 1224
ARKANSAS eclectic May report, 1873
  homeopathic May report, 597
  medical news, 409, 954, 1400, 1960, 2140
  state board May report, 1781
ARLCO-UREASE, 165
ARM: See also Forearm
ARM board in surgery, uses of, (159) 1608
  cross sections of leg and, (83) 2079
  focus of isolated primary tuberculosis in fascia of upper, (90) 517
  gunshot wounds of nerves in, (24) 2262
  neuralgia of, (47) 1330
  neuritis of, cervical ribs cause of, (48) 197
  prolapse of, excessive rotation of back from, (133) 283
  sign in brain disease of central nervous system, Leri's, (166) 438
ARMY and mental disease, 1396—E
  at front, health of, 1218
  commissioned veterinary corps for, (108) 275
  contagious diseases in, prophylaxis of, (59) 1510
  dysentery in, prophylaxis and treatment of, (72) 1511
  English, medical service in, 957
  good health in, 1963
  internal diseases in, (46) 1795
  medical casualties in war, 2055
  medical corps, examinations for, 1681
  medical corps, German, number of casualties among, 2243
  medical corps organization in Canada, 957
  mustering into, of men who have regained health after being invalided out, 1217
ARMY of Indian Empire, prevention of malaria in, (17) 1236
  prevention of disease in, 1491 (84) 2079
  roentgenoscopy in, (52) 2264
  sanitation, prize for, 1867
  students in, situation of, 1967
  surgeons, casualties among, 2240
  surgeons, relation of civilian surgeons to, (66) 806
  surgeons, volunteer, postgraduate course for, (85) 1512
  tuberculosis in, combating, (74) 1511
  venereal disease in, (86) 1241, (44) 1795
ARNETH count in lung tuberculosis, (3) 1699
  formula, *922, 1597
ARROWS dropped from aeroplane, wounds from, 1405
ARSENIC, 1300—E
  action of, on organs, experimental research on, (211) 362
  dips in preventing tick infestation, (73) 1424
  excretion of, in urine after subcutaneous or intravenous injection of salvarsan, (43) 2077
  herpes zoster following, (52) 1981
ARSENIZATION to prevent yellow fever and senate document, 689—E
D'ARSONVAL current in hypertension, (88) 970
ARTERIOSCLEROSIS, (117) 63
  and migraine, infancy of, (103) 892
  blood-pressure with nephritis and, (87) 2169
  calcification of arteries without preceding, (144) 360
  cerebral vessels, (141) 1328
  cholesterol as factor in, (112) 204
  heart, prognosis with, (88) 517
  relation of arterial hypertension to nephritis and, (89) 275
  treatment of obesity and, (58) 2167
ARTERIOVENOUS anastomosis for threatened gangrene, (125) 63, (12) 803, (53) 1325
  aneurysm, intracranial traumatic, affecting both eyes, (16) 2165
  aneurysm of deep epigastric artery and vein, (112) 510
  aneurysm of femoral vessels, common, (50) 356
ARTERY, aneurysm of posterior tibial, *1448
  brachial, pulse-flow in, (24) 2071
  calcification of, without preceding arteriosclerosis, (144) 360
  cerebellar, posterior inferior, occlusion of, *1550
  cerebral, spasmodic closing of, and cerebrum hemorrhage, (2) 1053, (27) 1054
  colic, aberrant middle, cause of retroperitoneal hernia, *842
  epigastric, arteriovenous aneurysm of vein and, (112) 510
  femoral, arteriovenous anastomosis of, for impending gangrene, (12) 803
  femoral, arteriovenous aneurysm of, (50) 356
  hepatic, and portal vein, outflow of blood from liver as affected by variations in condition of, (24) 888
  hyaloid, persistent, rarity of certain variety of, (138) 431
  iliac, aneurysm of internal, (17) 1884
  innominate, successful ligation, (38) 350
  lingual, post-mortem ligation of, (110) 1057
  mesenteric, inferior occlusion of, (117) 1698
  musculature of, functional importance of, (69) 1240
  occlusion of, in treatment of iliofemoral aneurysm, *207
  occlusion of large, partial, (22) 1509
  occlusion of, testing collateral circulation before, *1441
  palpation of, 1956—E
  pulmonary, embolus of, (49) 356
  pulmonary, isolated, action of drugs on, (76) 1425
  pulmonary, nature and causes of respiratory pressure variations in, (28) 888
  pulmonary, sigmoid valves of, experimental operations on, (51) 428
  sciatic, aneurysm of, (28) 1605
ARTERY, subclavian, laceration of and severing of brachial plexus, (133) 1983
  thyroid, inferior, ligation of, for strumectomy, (119) 1889
  tibial, aneurysm of posterior, *1448
ARTHRITIS: See also Gout; Joint Diseases; Rheumatism
ARTHRITIS and genito-urinary tract lesions, (48) 352
  antistreptococcus serum in chronic, *2225
  atophan and radium in gout and, *945
  chronic, medical management of, (50) 1325
  classification diagnosis of acute and chronic, (96) 1425
  deformans, (57) 275, (98) 615
  deformans and loose bodies in joints, connection between, (71) 202
  deformans and Still's disease, (42) 352
  deformans, oral endameblasis as factor in, *1746
  deformans, serodiagnosis of chronic infective deforming arthritis and, (54) 428
  deformans, treatment of, (16) 2075
  deformans, vaccine therapy of, 1596
  gonorrheal, (51) 976, (48) 1885
  gonorrheal and tenosynovitis, (85) 892
  gonorrheal, 200 cases without complication, (56) 1325
  hemophiliac, and hemophilia, (105) 1327
  hookworm, (78) 429
  infectious, in colts, bacillus abortivus equinus as etiological factor in, (29) 1504
  infectious, treated by specific methods, 3 cases of, (14) 609
  intravenous treatment of, (43) 2260
  multiple, operative treatment of contracted and deformed hands in, (104) 1983
  pneumococcic, following acute pneumonia, (15) 609
  pyemic, in foals, etiology of, (37) 1504
  rheumatoid, (12) 1793
  rheumatoid, etiology and pathogenesis of, (49) 1325
  streptococcic, action of vaccines and concentrated antistreptococcus serum in, (40) 805
  streptococcic infections with reference to, (146) 277
  streptococcic, surgical treatment of, (41) 709
  syphilitic, (148) 72
  treatment and management, (49) 1605
ARTHRODESIS of shoulder, hip-joint and knee, (78) 1060
  of shoulder, to correct deltoid paralysis, 9 cases, (91) 1616
ARTHROPODS, blood-sucking, from Lower Congo, list of, (20) 64
ARTHROTOMIES for fracture of patella, (40) 350
ASBESTOS, action of, (25) 278
  fiber, action of, on hemolytic system, (25) 278
ASCARIS in pyopneumothorax, (31) 810
  infection, (12) 64
  literature on, 50
  lumbricoides, Addison's disease aggravated by hysteria and, (20) 1236
  lumbricoides, eggs of, (68) 1424
  lumbricoides infection in Malabar district, (26) 1700
  surgical affections due to, (101) 282
ASCITES, acute chylous, in boy 8 years old, (2) 426
  capillary aspiration of, (114) 204
  continuous drainage of, (90) 1514
  false, splashing sound and, as signs of ileus, (30) 514
  modification of circulation in cirrhosis of liver with, (43) 895
  non-tuberculous origin of, in chronic recurrent diarrhea in children, (26) 64
  treatment of, (88) 2080
ASEPTIKONS refused recognition, 1778—P
ASPHALT paving and health, 171—E
ASPHYXIA in newborn infants, sequelae, (108) 198
  traumatic, (47) 60

ASPIRATION of joints, apparatus for irrigation and, 268—ab
ASPIRIN: See Acid, Acetyl-Salicylic
ASSOCIATED advertising clubs of America and ethics, 885—ab
Doctors, what New Teller thinks of, 1595—P
ASSOCIATION of French-Speaking Gynecologists and Obstetricians, meeting of, 494
of Military Surgeons, meeting of, 1123
ASSURED having had other complaints than one causing death, 2255—Ml
ASTHENIA and enteroptosis, (84) 1888
congenital, of heart, (137) 971
periodically recurring, (89) 282
traumatic, or traumatic shock, (46) 811
ASTHMA, acetyl-salicylic acid in, (110) 1334
anaphylactic reactions in horse, (18) 1421
anaphylaxis in, (45) 612
bronchial, chondrectomy for, *1065
bronchial, relation of nasal conditions to, (22) 273, (28) 1980
bronchoscopy in spasmodic, (16) 273, 1603—ab
cardiac, in child, (62) 2167
horse, (128) 1698
in children and egg poisoning, (26) 1880
mechanism of attack of, (38) 1142
relation of atypical gout to lung tuberculosis and, (53) 1239
thymic, (98) 1234
treatment, (89) 358
treatment, exercises to strengthen expiration, (73) 68
ASTIGMATISM and military service, (74) 281
ASTRINGENTS and opium contraindicated with intestinal insufficiency, (110) 2081
ASYNCHRONISM of ventricle functioning, (115) 204
ATAXIA, cerebellar, hereditary, (110) 354
cerebellar, in children, (58) 434, (119) 519
hereditary, 2 cases, (12) 1323
Locomotor: See Tabes Dorsalis
ATELECTASIA, treatment of, (92) 1242
ATHEROSCLEROSIS, experimental, studies in, (70) 890
ATHLETICS, high-school, 1765—E
medical aspect of, (73) 707
school, and gate money, 1970—C
school, proper regulation of, 1970—C
ATHREPSIA, congenital lesions of liver in newborn infant and in, (36) 514
sugar in incessant vomiting and, in infants, (54) 434
ATMOSPHERIC pressure, differential, aid to operations, (35) 1429
ATOPHAN and radium in gout and arthritis, *945
in sympathetic ophthalmia, (104) 608
toxic reaction to, 2254—ab
ATOXYL, blindness from, (26) 2262
vision disturbances after, (110) 282
ATRESIA rectovesicalis, operative case, successful, (55) 352
ATTENTIVE control, psychotherapy in re-education of, (64) 1880
AUENBRUGGER and Laennec, state of clinical medicine in time of, origin of auscultation and percussion, (64) 1137
AUFRECHT'S and Tsuchiya's technics for determination of albumin content of urine, (56) 896
AURICLE, conduction of, (40) 1701
fibrillation, diagnosis and treatment, 271—ab
fibrillation, paroxysmal, following auricular flutter, (24) 610
flutter followed by paroxysmal auricular fibrillation, (24) 610
flutter in acute rheumatic carditis, (86) 353, (1) 893
flutter of left, (108) 518
murmurs in arhythmia of, (63) 977
tachysystoly of, and irregular pulse, (62) 1886, (76) 2079
AUSCULTATION and percussion, origin of, and state of clinical medicine in time of Auenbrugger and Laennec, (64) 1137
findings with heart-block, (35) 1060
AUSTRALIAN women, poor health of, due to wet-bulb temperature, 601
AUSTRIA, expenditures for sanitary and social purposes in, 497
pharmaceutical arrangements in, 957
shortage of medical supplies and drugs in, 958
AUSTRIA-HUNGARY, new university in, 1964
AUSTRIAN journals and the war, 1042
AUTHORS, hints to, 702—ab
AUTOGENOUS VACCINE: See Vaccine, Autogenous
AUTO-INTOXICATION, Intestinal: See Intestine, Intoxication
AUTOLACTOTHERAPY, (96) 1138
AUTOLYSATES of embryonal or cancer tissues, in treatment of cancer, (98) 980
AUTOLYSIS, inhibition of, by alcohol, (63) 1232
AUTOMOBILE light, for physician, 1048
transformation of, into ambulance, 1313—ab
AUTONOMIC thresholds, studies of, (6) 2258
AUTOPSY: See Necropsy
AUTOSEROTHERAPY, (147) 972
in pleurisy, (252) 364
in skin diseases, (51) 1981
AUTOSERUM in dermatology, (88) 708, *1190
AVIATION, psychic factors in, 419—C
AVIATORS, action of altitudes on perception and will power of, (95) 203
arrow of, (65) 2078
arrow of, pierces shoulder and peritoneum, (71) 2067
AXILLA, aponeuroses in, in relation to phlegmons, (61) 356
diagnostic importance of enlarged glands in, with glandular tuberculosis in infants, (112) 2169
AXILLARY sup, (134) 893
AZOTEMIA and death, (58) 356
in nephritis, (194) 286
indicanemia and uremia or, (42) 1430

B

B B X, 1128—P
BABESIA or piroplasma, (26) 2165
BABESIASIS, canine, in Porto Rico, (17) 513
BABINSKI, cerebellar syndrome of, (56) 1981
sign in transient functional diseases, (10) 1507
BACILLICIDE refused recognition, 1778—P
BACILLUS abortivus equinus as etiological factor in infectious arthritis of colts, (29) 1504
acid-fast, curves of lipolytic activity and proteolysis of, in nutrient broths, (85) 2162
acid-fast, in urine, significance of, (153) 1699
acid-fast, soluble lipase in broth cultures of tuberculosis bacilli and, (81) 2162
and bullets, (4) 1609
anthracis, hemorrhagic leptomeningitis from, (116) 814
anthracis, history of, (165) 206
Boas-Oppler, study of, (26) 1985
bulgaricus in diabetes mellitus, (86) 708, (112) 892
bulgaricus in diarrhea, (17) 704
Carriers: See Carriers, Bacillus
coli communis, 1112—T
coli communis complicating pregnancy and labor, medical and surgical treatment, (107) 198
coli communis infection, acute, of urinary tract in children, (3) 278
coli communis infection in infants, (60) 806
coli group, production of acid by, (96) 2162
coli vaccine, 1204, 1479, 1763
colon, classification of, (37) 804
colon type, characteristics of, found in bovine feces, (30) 804
columbensis, osteoperiostitis due to, (23) 355
cultivation of, preferring conditions of partial anaerobiosis, (26) 804
diphtheriae, atoxic strains of, (49) 706
diphtheriae, negative results of electrophoresis in eradicating, from tonsils, (170) 206
BACILLUS dysentariae, nucleoproteids of, (115) 2082
dysenteriae septicemia, case of, *1853
Friedlander vaccine in fibrosis of lung, (28) 355
fusiformis and spirochete in lesions in Philippines, (32) 1788
fusiformis in scarlet fever, (192) 286
gasoformans, method of estimating amount of gas produced by, (21) 709
hansenii, in vitro, (19) 1324
lactis bulgaricus in trachoma, (91) 2074
leprae, bacteremic nature and laboratory diagnosis of, (9) 2258
leprae, grass and smegma, metabolism of, in plain, dextrose, mannite and glycerin broths, (80) 2162
mucosus capsulatus group, biometrical study of, (21) 1504
mucosus in blood, with purpura, (35) 805
of Bordet-Gengou vaccine, 1204
proteus, sensitized, in uterine abscess, (2) 199
pseudo-dysenteriae, distribution of, (69) 1430
pyocyaneus vaccine, 1204, 1479, 1953
smegmae, (10) 967
tetani, effect of gentian-violet on, (94) 2163
tuberculosis, action of chemical disinfectants on, (19) 1504
tuberculosis, anaphylaxis with lipoids of, experiments, (46) 707
tuberculosis and action of sunlight on antigens and antibodies, relationships of, (93) 358
tuberculosis, attempt to immunize guinea-pigs against tuberculosis with living, (52) 707
tuberculosis, bovine, in phlyctenular eye affections, (25) 610
tuberculosis, cultivation of, (22) 1428
tuberculosis, culture of, from blood post mortem of miliary tuberclulosis, *1656
tuberculosis cultures, volatile substances isolated from, and effects on experimental tuberculosis, 269—ab
tuberculosis, curves of lipolytic activity and proteolysis of rapidly growing human, in media of varied composition, (84) 2162
tuberculosis, development and number in sputum in connection with clinical course, (95) 282
tuberculosis emulsion in extensive lupus, (84) 1507
tuberculosis, fat-free, influence of iodin and iodids on absorption of granulation tissue and, (88) 2162
tuberculosis, fragmentation of, 340
tuberculosis, freed from fats, antigen action of, (32) 355
tuberculosis in blood and inoculation of animals, (117) 70
tuberculosis in blood in guinea-pigs, (96) 282
tuberculosis in blood in lung tuberculosis, (122) 1890, (95) 1990
tuberculosis in sputum in tuberculosis, (2) 63
tuberculosis in sputum, intracellular position of, of no import for prognosis, (93) 282
tuberculosis in sputum, type of, (142) 360
tuberculosis in urine, examination for, (9) 1979
tuberculosis in urine with teratoma testis, (78) 2074
tuberculosis, infection of middle ear with bacillus coli and, (93) 1425
tuberculosis investigations on strains isolated from cases of lupus, (36) 279
tuberculosis, lizard, in tuberculosis treatment, (54) 612
tuberculosis, metabolism of rapidly growing human, (77-79) 2162
tuberculosis, metabolism of saprophytic human, in plain, dextrose, mannite and glycerin broths, (76) 2162
tuberculosis, methods for finding, (96) 2074
tuberculosis, peptone-free medium for, (32) 1700
tuberculosis, perforation of, into aorta and trachea, (59) 516
BACILLUS tuberculosis, reduction of virulence of, stored in normal salt solution, (35) 709
tuberculosis, relative activity of soluble lipase and lipase liberated during autolysis of rapidly growing, (82) 2162
tuberculosis, soluble lipase in broth cultures of acid-fast bacteria and, (81) 2162
tuberculosis, specificity and thermostability of lipase developed during growth of, in media of varied composition, (83) 2162
tuberculosis, turtle, cultivated from mastitis following Friedmann's tuberculosis treatment, (126) 436
typhosus, esterase activity of plain and dextrose broth cultures of, (32) 1504
typhosus in blood, (116) 70, (89) 1798
typhosus, in feces, determination of, (78) 2079
typhosus, vaccination with, blood-cell picture in paratyphoid and after, (43) 1605
typhosus, viability of, in sour cream, (9) 2159
BACK, pain in, and diagnosis, (24) 195
BACKACHE, (41) 2261
and posterior parametritis, (80) 1326
cause and treatment, (129) 1698
BACTERIA, acid production by, (41) 804
aciduric, fermentative activities of, (34) 804
anaerobic, notably pathogenic spirochetes, cultivation in fluid media containing coagulable albumin, (22) 1985
antiferments, (43) 1789
classification of, for water analysis, (11) 1984
contribution of, to feces after feeding diets free from indigestible components, (34) 605
destruction of, through action of light, (6) 2159
differentiation of, by protective ferments not practicable, (210) 362
gastro-intestinal, of healthy children, 952—E
germicidal action of sunlight on, (5) 2159
in air attracted to chilled surfaces, (76) 281
in circulating blood of rabbits, estimating, (37) 1136
in milk heated to various temperatures, (34) 1325
infection, aneurysm of aorta due to, (14) 1883
inhibiting action of colored well water on, (18) 2159
intestinal, and purins, 871—E
mutations, 424—ab
pathogenic, effect of different qualities of waters on longevity of, (28) 2159
potassium tellurite as indicator of life, (29) 1788
relation of, to movements of nitrogen, (94) 69
spore-bearing, in Washington market milk, (35) 1324
tularense in rabbits, danger to man, *2041
tularense, infection of man with, (27) 1505
variability among, and bearing on diagnosis, (11) 1883
variability of fermentative reaction of, experiments on, (42) 804
varnish to immobilize, (105) 1705
BACTERIEMIA, otitic streptococcic, (82) 708
BACTERIN: See Vaccine, Bacterial
BACTERIOLOGY of various infections, *903
publications on, 796
BACTERIOLYSIS and proteolysis, (70) 1608
BALKAN WAR, fracture of bones and wounds of joints during, (28) 1059
importance of, to medical profession in Canada, (46) 1231
medical and bacteriologic experiences during, (123) 971
military surgery in, (98) 358, 405—E, (53) 1613
BALNEOLOGY, heat as factor in, (99) 713
sea-weed products in, (102) 1146

BALNEOTHERAPY: See also Baths; Hydrotherapy
BALNEOTHERAPY of chronic nephritis, (92) 69
BANDAGE, pillow extension, for fracture of leg, (39) 1985
BANG'S micromethod for determining blood sugar compared with Bertrand's method, (16) 605
BANKS, Mitchell, lessons from life and work of, (8) 1793
BANTI'S DISEASE: See Anemia, Splenic
BARBER-SURGEONS company, (24) 2075
BARIUM sulphid and barium sulphydrate, 1596
BARTHOLIN'S gland, primary cancer of, (77) 517
BASEDOW'S DISEASE: See Goiter, Exophthalmic
BASS-WATKINS test for typhoid, 883
BATHING, 1297—T
BATHS: See also Balneotherapy: Hydrotherapy
BATHS, air, in tuberculosis, 347—ab
  carbon dioxid, uses of, (93) 429
  carbonated, (69) 812
  carbonated, action of, on circulation, (103) 713
  carbonated, mechanism of action on weak heart, (48) 1510
  heart function influenced by various forms of, (80) 614
  mud, for sciatica, (48) 811
  mud, in menstrual disturbances, (91) 69
  sweat, influence of, on non-protein nitrogen content of blood in nephritis, *944
  thermal, effect of, on circulation. (100) 69
  transmutation of money for, into lecturer's fees, 787—E
BATHTUB, new bed, (124) 1698
BATTLE field, sanitation of, 1310
  field, surgeon on, (41) 1612
  naval, circular of directions before, (51) 2264
  preparations for, medical department at general headquarters and, (101) 1057
BEANS, advantages of dried peas and, in diabetes, (45) 811
  for prevention of pellagra, 1314—C
BEARD, ringworm of scalp and, (31) 895
BECK'S paste, 698
BED for advanced heart disease, (71) 281
  position of, in relation to magnetic meridian, rotation of earth, etc., (111) 1064
BEE and ant as carriers of pathogenic micro-organisms, (17) 1324
  stings and anaphylaxis, (30) 1793
BEEF, fat in, no basis for prejudice of public against high color of, used as food, 1210—E
BEHRING and Metchnikoff, 2144
  diphtheria inoculation, effectual, (65) 812, (10) 887
BELGIAN colleagues, aid for our, 2144
  physicians and surgeons, aid to, 2240
  physicians, funds required for, 1866
  physicians, privileges for, 1967
  refugees, 1590
  refugees, dispensary for, 1966
  students, aid for, 1868
  wounded in England, 1966
BELL, Charles, artistic qualities of, (39) 59
BENCE-JONES protein in urine, origin of, 1481—E
  proteinuria, metabolism in, (45) 605
BENDER hygienic laboratory, (3) 58
BENZOATE, synthesis and rate of elimination of hippuric acid after ingestion of, in man, (39) 606
BENZOL, biologic action of selenium, tellurium, thorium and, (38) 2312
  in leukemia, *143, (196, 198) 440, (98) 2074
  poisoning, blood findings in acute and chronic, (121) 2170
BENZOYL, carbinol and other substances, formation of, from phenyl glyoxal by action of fermenting yeast, (65) 61
BERANECK'S tuberculin in tuberculosis, 4 cases, (13) 2165
BERGONIE'S method of electro-gymnastics, (113) 1334
BERIBERI, *1287, (13) 1695
  etiology of, and milled rice, (9) 807
  experimental study of, (12) 1984
  heart in, orthodiagraphic examination, (34) 355
  in Papua, (27) 1884
  influence of fuel value of dietary on quantity of vitamin to prevent, (10) 278
  pathologic affinities of scurvy and, *1290
  pathologic-histologic findings in nervous system with, (78) 1145
BERKEFELD filter, effect of filtration through, on coagulability of oxalated plasma, (19) 1604
BERLIN letter, 45, 177, 255, 335, 415, 496, 593, 878, 959, 1044, 1217, 2056, 2145, 2242
  public health board proposed for, 415
BERTRAND'S method for determining blood-sugar compared with Bang's micromethod, (16) 605
BETUL-OL refused recognition by Council, 2148—P
BICEPS, rupture of tendon of long head of, (107) 282
BIG SIX, nostrum advertising in, 1594—P
BILE culture medium for Malta fever germs, (163) 438
  duct, atresia of, congenital, (16) 1058
  duct, calculi in common, transduodenal and retroduodenal choledochotomy, (38) 279
  duct, cancer of common, diagnosis of, (33) 2160
  duct, deformity of, (56) 1060
  duct infection, complications and end-results, (78) 61
  pigment in urine with hemolytic jaundice, (13) 2261
  pigment, sand test for hemoglobin in urine and, (58) 1613
  pigments, urochromogen reaction influenced by heat and, (156) 206
  retention from functional incapacity of liver, (62) 356, (68) 434
  salts in blood, influence of, on vascularization of organs, (91) 1145
  tract, echinococcosis of liver perforating into, operative treatment, (59) 434
  tract, hydrops of, (152) 438
  tract in cholera, (2) 1983
  tract, pancreas disturbance secondary to disease of stomach or, (109) 204
  tract, relation of liver to operations on stomach and, (73) 509
  tract surgery, (18) 2070, (3) 2309
BILHARZIA disease, case of, (13) 64
BILLFINGER, Dr., conviction of, 593
BINET-SIMON test, use and value of, *319
BINGHAMTON, newspapers and book-store proprietors, attitude of, toward "The Clarion," by S. H. Adams, 2049—E, 2062—C
BIOLOGIC therapy and public health, (16) 1420
BIOLOGY, periodicity in, (34) 1060
BIRTH and death rates, 2133—ab
  certificate, value of, (118) 608
  dislocation of lower femoral epiphysis, (29) 1231
  paralysis, unusual form of, *2282
  rate, French, latest diminution in, 255
BISCUITS, flour moth in soldiers', (7) 1699
BISMUTH meal and Roentgen-ray method in diagnosis of gastro-intestinal disease, (16) 894
  passes into bronchi through perforation in cancer of esophagus, (58) 1987
  roentgenography and test-meal, technic of, (40) 1566
BLACKWATER FEVER, (89) 1791
  in southern Rhodesia, (114) 1234
BLADDER calculi, (71) 353
  cancer, (21) 1920
  cancer at base of, diathermy for, (41) 279
  cancer, extensive operation in, *2266
  cancer, radium therapy in, *1852
  changes following suprapubic prostatectomy, (101) 2169
  displacement of uterus, rectum and, end-results after 109 operations, (9) 2070
  diverticula of urinary, *2015
BLADDER drainage, simple method of, (112) 276
  exstrophy, (52) 197
  exstrophy, operative treatment of, (164) 361, (103) 436
  exstrophy, ureters grafted into rectum in, (4) 199
  foreign bodies in, *656
  gunshot wound of, (91) 1697
  hematuria from varices in, (169) 438
  hernia, 3 cases, (43) 611
  irrigation of kidney pelvis and, two-way retention catheter for, (97) 813
  operations, endovesical, simplification of, (86) 979
  papilloma, high-frequency destruction in, (39) 1422 (11) 2165
  perforation of, from chronic ulceration, with secondary appendicitis, (36) 894
  restoration of, (40) 811
  roentgenograms of, (62) 1431
  rubber drainage-tube in, *656
  rupture of, (7) 2309
  rupture of, extraperitoneal, surgical treatment, *2114
  rupture of, intraperitoneal, (10) 1139
  rupture of, with fracture of pelvis, (108) 1057
  sphincter, insufficiency of, in women, (101) 713
  syphilis, (39) 810
  transposition of uterus and, (85) 1056
  transposition of uterus and, for cure of rectocele and prolapse of uterus, (62) 969
  tuberculosis, cystoscopy with, (82) 281
  tuberculosis, exclusion of, in severe, (104) 1990
  tuberculosis, phenol instillation in, (91) 1138
  tumors, (122) 1698
  tumors, high-frequency current in, (79, 84) 281, (36) 1510
  tumors, instrument for direct application of radium in, (104) 429
  tumors, malignant, excision of, (3) 199
  tumors, operative treatment, (56) 2077
  tumors, radical extirpation of, technic for, (116) 510
  urinary, methods of invasion, (30) 509
  urinary, self-retaining, collapsible, T-shaped catheter for suprapubic drainage of, *1031
  wounds, shell, (36) 2311
BLAIZOT'S and Nicolle vaccine in gonorrhea, (5) 2164
BLASTOMYCOSIS, systemic, fatal, 2 cases of, (24) 350
BLAUD'S pills, keeping quality of, 1315
BLEPHAROPLASTY by pregrafted flap, (37) 350
BLIND and seeing subjects, comparative study of, (62) 1880
  Illinois school for, with record of causes of blindness, (58) 1325
BLINDNESS: See also Ophthalmia Neonatorum
BLINDNESS, causes of, in 1109 children, (5) 1139
  color, examination for, by lantern tests, (65) 1056
  color, inheritance of, (102) 1064
  from atoxyl, (110) 282, (26) 2262
  mastoiditis, latent, complicated by cerebral symptoms, streptococcemia and, (27) 1420
BLOOD, acid content of, increased in uremia, (81) 517
  action of roentgenized serum on, (63) 1430
  advances in knowledge of circulation and, since Harvey's time, (28) 1884, (32) 1985
  albumin content of, in tuberculous children, (223) 363
  alkaline reaction of, efforts of organism to maintain normal, (85) 68
  alterations in, in hay-fever, (3) 64
  ammonia content of, effect of acute destructive lesions of liver on its efficiency in reduction of, (67) 970
  ammonia, rate of disappearance in, in normal and thyroidectomized animals, (30) 605
  bacillus mucosus in, in purpura, (35) 805
  bacteria in circulating, in rabbits, estimating, (37) 1136
BLOOD, bile salts in, influence of on vascularization of organs, (91) 1145
  caisson-work and action of, (100) 1990
  calcium content of, (173) 285
  calcium removed from, by dialysis in study of tetany, (75) 891
  carbon monoxid in, potassium iodid test for, (129) 1890
  changes in, during labor, lactation and first menses, (62) 812
  cholesterin content of, in diagnosis of cholelithiasis, *146
  cholesterin in, and resisting power of red corpuscles in anemic conditions, (123) 1706
  circulating, of living animals, removal of diffusible substances from, by dialysis, (97) 970
  clotting of, seen with ultra-microscope, (29) 889
  coagulability, in young infants, (138) 283
  coagulation and fat acids, (40) 1142
  coagulation and sugar solution, 1226—ab
  coagulation, fibrin as factor in, (122) 616
  coagulation time of, (12) 273, (109) 1234
  coagulation time of, in epilepsy, (69) 1880
  complement in, variation of amount of, in acute infectious diseases and clinical features, (18) 1984
  composition of, and constitution of child's body in relation to nutrition and weight, (67) 1988
  corpuscles in paratyphoid and after vaccination with bacillus typhosus, (43) 1605
  corpuscles, lipoid substances in, (151) 206
  corpuscles of vertebrates, structural transformations of, (26) 1504
  corpuscles, origin of, and differentiation of leukocytes, (81) 1507
  corpuscles, plasma removal with return of, (98) 970
  corpuscles, red, basic staining of, (165) 438
  corpuscles, red, cholesterin and resisting power of, (118) 1889
  corpuscles, red, color-index of, (13) 604
  corpuscles, red, elliptical human, (53) 1423
  corpuscles, red, fragility of, in physiologic and pathologic states, (43) 433, (46) 710
  corpuscles, red, proteolytic ferments contained in, 488—E
  corpuscles, resistance of, to hemolysis by saponin, (19) 1059
  corpuscles, total red and white, and hemoglobin and color-index estimation, (83) 1597
  Corpuscles, White: See Leukocytes
  count apparatus, modified technic for, (113) 70
  cytology of, in passive immunity, (8) 1058
  destruction and regeneration, relation of spleen to hemolytic jaundice and to, (52) 428, (71) 890
  determination of varieties of man, 883
  diseases, drug treatment of, (152) 284
  diseases, nucleinic acid test in diagnosis in, (129) 360
  diseases, roentgenotherapy in, (61) 518
  diseases, treatment, present status of, (83) 614
  distribution of, and physical and chemical measures, (72) 516
  distribution of, during stimulation of splanchnic nerve, (18) 888
  dust in diagnosis of liver disease, (94) 510
  dust in infants' serum, (59) 202
  epinephrin in, of children, (125) 1706
  examination in malaria, plea for, (145) 1328
  extravasated, vasoconstricting properties of, (25) 514
  fat content of, 2074—E
  fat content of, variations in, under normal conditions, (59) 1232
  fat-lipoid content increased in pregnancy, 1299—E
  flow, carotid, and intra-abdominal pressure, (7) 2258

CANCER, appendix, (46) 197
  autolysates of, embryonal or cancer tissue in, (98) 980
  Bartholin's gland, primary, 517
  bile duct, common, diagnosis of, (33) 2160
  biologic tests for diagnosis of, (97) 980
  bladder, (21) 1980
  bladder, diathermy for, (41) 279
  bladder, plea for extensive operation in, *2266
  bladder, radium therapy in, *1852
  breast, (91) 62, (130) 63, (123) 198, (53) 275, 878—ab, (64) 1606
  breast, diagnosis of, (83) 892
  breast, recurrent, disappearance after removal of ovaries, (29) 1605
  breast, Rodman operation for, *1256
  breast, treatment of recurrences and metastases from, (5) 2075
  cardia, advantages of resection from rear, (126) 71
  cecum, (46) 197, (78) 1791
  cells, cultivation of, in vitro, 191—ab
  chemotherapy of, 33—E, (257) 364, (69) 613
  colectomy for, (41) 611
  colectomy for, technic for exteriorization for, (47) 612
  colon, intestine obstruction due to, (144) 1608
  De Keating-Hart's method of fulguration and thermoradiotherapy in, (22) 1700
  diagnosis, (12) 58, (39) 967, (40) 2160
  diagnosis and treatment, (76) 1062
  diagnosis, early, and prevention of, (130) 1234
  diagnosis from cells found in stomach content, (66) 434
  diet and, (11) 1698
  disappears after intercurrent erysipelas, (90) 1798
  duodenum and small intestine, (7, 24) 1793
  duodenum resection with papilla for, (63) 1331
  ear, 3 cases, (100) 1514
  electrical treatment of, 192—ab, (107) 1327
  esophagus, bismuth passes into bronchi through perforation in, (58) 1987
  esophagus, lower, operation for, (45) 1061
  esophagus, resection of cardial section for, (57) 1144
  etiology of, 879—ab
  experimental, (135) 616
  fallopian tube, primary, (17) 1504
  frequency of, in man and tumor in plant and animal life, 1502—ab, (87) 1697
  growth of, in mouse, influence of various substances on, (47) 1789
  hand, after battle wound, (45) 1330
  heredity and, 1480—E
  histology of, 879—ab
  histology of, after radiotherapy, (51) 1239
  immunity by radium irradiated mouse cancer, (32) 279
  in Netherlands, (98) 1063
  in old age, factors in disposition of, (130) 1882
  incidence of, (136) 512
  intestine, large, in young people, (31) 611
  intestine, large, rectum excepted, 39 cases, (60) 1060
  jejunum, middle, (99) 436
  Kangri-burn, (114) 608
  laryngectomy for, (86) 1146
  larynx, (100) 436
  larynx, intrinsic, (22) 64, *989
  larynx, intrinsic, results of operation (laryngofissure) for, (13) 808, (73) 1056, (141) 1882
  larynx, operative treatment, (104) 1881, (124) 1890
  larynx, radium therapy of, (32) 273
  liver, primary, in child 3 years old, (28) 611
  liver, primary, operative treatment, (38) 1330
  lung, primary, *1364
  mesothorium in, (89) 979
  neck, cystic, (104) 282
  non-operative treatment of, 794
  operation, two-stage, in, (11) 802
  orbit, removal with preservation of eyeball, (51) 356

CANCER, pathology and therapy of, 879—ab
  potassium iodid test for differentiation of, and treatment, (84) 1145
  problem, (135) 63, (192) 972, (143) 1328, (32) 1611, 1693—ab
  prophylaxis of, (23) 350, (103) 429
  prostate, *1013, (22) 1980
  prostate, in youth of seventeen, (32) 427
  prostatectomy for, perineal, modified technic, (41) 811
  quack, (178) 973
  radiotherapy from surface for deep, (65) 1331
  radiotherapy of, (124, 125) 205, (123) 616, (84) 1241
  radiotherapy of, or surgical treatment, (56) 1506
  radium and Roentgen ray in skin diseases and, (100) 1507
  radium as supplement to operative treatment of, (54) 896
  radium in, (77) 61, (121) 714, 787—E, (91) 1233, (44) 1238
  radium in, at Huntington Hospital, (44) 2073
  radium in, dangers, (125) 520
  radium in, efficacy of, 880—ab
  radium in, intra-uterine application of, (90) 979
  radium in superficial, 11 years' experience of, (6) 2261
  radium tubes imbedded in, (106) 2163
  rectum, (20) 1980
  rectum and recto-sigmoid junction, early clinical diagnosis of, (108) 1426
  rectum, early diagnosis, (34) 1231
  rectum, radical operation for, (14) 2075
  research institutions, appeal to, (118) 63
  Roentgen ray, (147) 438
  roentgenotherapy and radium in, experiences with, (81) 1432, (11) 1883
  roentgenotherapy of, (16) 199, (92) 813
  roentgenotherapy of, changes in technic, (57) 1331
  roentgenotherapy of, plus injection of blood, 880—ab
  roentgenotherapy of superficial, (80) 1432, (99) 1514
  serodiagnosis, Abderhalden, (133) 360, (200) 362, (145) 437, (74) 509, (6) 708, (2) 973, (48) 976, (47) 1143, *1169, (39) 1237, (122) 1327, (32) 1428
  Skin: See *also* Epithelioma
  skin, (102) 1507
  skin, roentgenotherapy in, (44) 1981
  skin, roentgenotherapy inadequate for burrowing, (146) 360
  statistics, educational value to insurance companies, public and medical profession of, (144) 277
  stomach, acute onset, (10) 58
  stomach, clinical study of 1,000 cases, (2) 1979
  stomach, early diagnosis of, (60) 516, (150) 1699
  stomach, early differentiation of ulcer and, (59) 1240
  stomach, frequency of gastric ulcer with, (89) 203
  stomach, in young, *1839
  stomach, Kelling's seroreaction of, 1222—C
  stomach, pathology of early, (41) 1789
  stomach, Roentgen findings with, misleading, (62) 1331
  stomach, roentgenoscopy in early and latent, (60) 1424
  stomach, roentgenoscopy, typical, (117) 814
  stomach, serodiagnosis of, Kelling's, 870—E
  stomach, surgical treatment, (113) 714, (35) 1885
  stomach ulcer and, (59) 1701
  stomach ulcer and, digestion leukocytosis in differentiation of, (77) 1062
  study of, (47) 1605
  sugar-content of blood in, 192—ab
  surgical treatment of, (50) 515, (32) 1055
  syphilis and tuberculosis in same patient, *1819
  testicle, (30) 611
  throat and esophagus, technic for radiotherapy of, (81) 1060
  tongue, etiology and treatment, (1) 1328

CANCER, tongue, prognosis of, (31) 1884
  tongue, with amyloid disease, low arterial blood-pressure in, (17) 1329
  treatment by physical methods, 1321—ab, (13) 1879
  treatment, general and experimental, 192—ab
  treatment, modern trend in, (105) 62, 879—ab
  ureter, primary, (98) 2169
  urine in, 585—E
  urine in, colloidal nitrogen compounds in, (58) 1332, 1584—E
  urine tests for, unreliable, (73) 281
  uterus, (34) 59, (19) 894, (175, 177) 973, (110) 1138, (69) 1606
  uterus, abdominal operations for, (131) 71, (19) 1980
  uterus cervix, (27) 59, (142) 1328
  uterus cervix, accessibility of diseased area about neck of uterus and upper vagina in, (111) 1138
  uterus cervix, tubercles in, (28) 1428
  uterus, cured by postoperative infection, 1418—ab, (12) 2070
  uterus, early diagnosis, (176) 973; 1499—ab
  uterus, inoperable, heat in, (16) 808, (140) 1608
  uterus, inoperable, Percy treatment of, *817
  uterus, mesothorium in, (62) 1144
  uterus, myoma and cancer in same, (188) 286
  uterus, necessity of constantly looking for, 1319—ab, (7) 2070
  uterus, operations for recurrence of, permanent cures, (60) 67
  uterus, operative treatment, indications and technic for, (82) 1145
  uterus, operative treatment, radical, (19) 809, (141) 1608
  uterus, radium and roentgenotherapy of, (114) 1334
  uterus, radium in, (160) 206, (158) 438, 1786—ab
  uterus, Roentgen ray and radioactive substances in, (3) 349
  vaccine and anticancer globulins in surgical treatment of malignancy, *1258
  vagina, primary, radium and Roentgen rays in, (66) 606
  vulva, 3 cases, (167) 361
CANNED string beans, food-poisoning from, (29) 1696
CANNULA, Crile, modification of, (90) 1233
CANTHOTOMY, external, (139) 1328
CAPSULES, gelatin, treated with formaldehyd, (64) 1506
CAPSULOTOMY, preliminary to extraction of immature cataract, *851
CARAMEL in diabetics' diet, (131) 437
CARBINOL, benzoyl and other substances, formation of, from phenyl glyoxal by action of fermenting yeast, (65) 61
CARBOHYDRATE, feeding malnourished infants with high proteins and, and very low fat values, 55—ab
  fermentation tests, use of decolorized acid fuchsin as acid indicator in, (41) 804
  in diabetic diet, (121) 205
  in infant feeding, management of, (129) 198
  in nutrition, (14) 1427
  metabolism, connection of, with elimination of lactic acid in urine, (216) 362
  metabolism, studies of (64) 61, (70) 1232
  serum broth of constant composition for use in study of streptococci, (39) 804
  tolerance tests, non-specificity of, (24) 1695
CARBON dioxid and oxygen in blood, interrelation between, 2231—E
  dioxid bath, uses of, (93) 429
  dioxid output of nerve fibers and ganglia in limulus, comparison of, (65) 969
  dioxid production from nerve fiber in hydrogen atmosphere, (11) 508
  dioxid snow for smallpox pitting, (38) 1794
  dioxid tension in air in lungs, estimation of diabetic acidosis by determination of, (111) 70

CARBON dioxid tension of expired air, device to estimate, (51) 515
  monoxid in blood, potassium iodid test for, (129) 1890
  monoxid poisoning in Senghenydd explosion, (8) 513
  monoxid poisoning on steamship, (76) 1511
CARBONATED baths, (69) 812
  baths, action of, on circulation, (103) 713
  baths, mechanism of action on weak heart, (48) 1510
CARCINOMA: See Cancer
CARD, record, for anesthetist, *1029
CARDIORENAL Diseases: See Heart and Kidney Diseases
CARDIOSPASM, (53) 352
  improvement in method of dilatation and apparatus, *2131
CARDIOVASCULAR disease and seashore, (35) 1142
  disease, pains in, (106) 1327
  disease, pathogenesis and treatment of, (129) 616
  disease, therapy of, *311
  diseases, indigestion forerunner of cardiorenal and, (111) 2075
  syphilis, (15) 1135
  system, behavior under physicotherapy, (129) 436
CARDITIS, acute rheumatic, auricular flutter in, (1) 893
  acute rheumatic, heart block in, (7) 2310
CARDUI, Wine of, 258—P, 961—P
  endorsed by Holston Conference of Methodist Church, 2058—P
  Wine of, libel suit against A. M. A., 961—P, 1038—E
  Wine of, still soliciting testimonials, 1313—P
CARIES, dental, and internal secretions, (4) 354
CARMIN, feces marked off by, (80) 357
CARNOSIN in meat, 489—E
CAROTID blood-flow and intra-abdominal pressure, (7) 2258
  tumors of, (134) 63, (136) 431
CAROTIN and xanthophylls, fate of, in body, 1304—E
CARRIERS, ants and bees, of pathogenic micro-organisms, (17) 1324
  bacillus, (7) 974
  bacillus, among animals, 248—E
  diphtheria, (82) 1063
  diphtheria, chronic, vaccine therapy for, (108) 1698, (94) 1982
  diphtheria, treatment of, (43) 509
  dysentery in Sarawak, (13) 609
  flies as, of disease, 1674—E
  germ, at sanatoriums and spas, (173) 361
  malaria, 2158—ab
  oxyuris vermicularis as, (102) 1327
  typhoid, (115) 359, 1860—E
  typhoid, and institutional epidemics, (31) 2260
  typhoid from, through milk, (124) 1139, (5) 1420
  typhoid, 93 persons infected by, at public dinner, *1537
  typhoid vaccine and, 420
CARRION, monument to, 333
CARROTS, yellow skin after eating raw scraped, (103) 1146
CARTILAGE, regeneration of bone and, (127) 1882
CASE histories, publication of, and professional secrecy, 592
CASEIN, 1128—P
  Abderhalden's dialysis test applied with, (82) 517
  action of rennin on, (16) 2259
  commercial, feeding value of sanatogen and, *1831
  in infant-feeding, (2) 887
  phosphorus content of, (64) 1232
  splitting ferments, (61) 2167
CASTRATION: See *also* Sterilization
CASTRATION, nervous and mental disturbances in women following, *1345
  sympathetic irritability lowered by, 1860—E
CATARACT, diagnosis of senile, chronic glaucoma and atrophy of optic nerve, (72) 1797
  extracapsular extraction of, irrigation after, (10) 354
  extraction, clear pupil after, (24) 1700
  extraction, complications in, (31) 1980
  extraction of immature, following preliminary capsulotomy, *851
  extraction, in capsule, notes on 1,137 operations, (9) 354

CATARACT extraction, present status of, (69) 509
far-sightedness, long-sightedness and causes of, (64) 1056
incipient, subconjunctival injections of mercuric cyanid in, 1603—ab
mechanism of development of presbyopia and, (55) 1430
operations at Shikarpur, 1,000 performed in 6 weeks, (8) 354
operations, choice of, (7) 1139
operations, double, (112) 1426
polar, (157) 72
senile cortical, similar to cataracta complicta, (139) 431
treatment of earlier stages of senile, (136) 1608
CATARRH, deafness due to, physiologic treatment of, (109) 354
intestinal, in children, chronic, treatment of, (75) 1432
of apex of lung, examination for, (46) 1510
of uterus cervix, induced by gonorrheal threads free from gonococci, (44) 1510
CATATONIA, hemiatrophy of cerebellum in, (60) 1326
CATGUT splints, woven, for open treatment of fractures, (89) 1057
CATHETER, self-retaining, collapsible, T-shaped, for suprapubic drainage of urinary bladder, *1031
two-way retention, for continuous irrigation of bladder and kidney pelvis, (97) 813
CATHETERIZATION, ureteral, and hematurias, (104) 1507
CAUTERY in ulcer of stomach, (155) 1609
CAVERNOUS plexus, gunshot wound of, (157) 1699
CECO-SIGMOIDOSCOPY for Hirschberg's disease, (116) 2075
CECUM and chronic disorders in right lower abdomen, (85) 2074
cancer of appendix and, (46) 197, (78) 1791
chronic inflammation of, and pericolitis, (59) 1060
cyst of, causing intestinal obstruction in infant, (5) 277
diagnosis and treatment of disease of, 270—ab
disease of appendix, sigmoid flexure and, (76) 711
diseased condition of, (84) 1791
movable, torsion of colon, ileus and, (30) 1141
operations, disturbance after, (119) 436
perforation with ileus in lower intestines, 2 cases, (138) 360
undescended, (33) 976
CEDAR poisoning, 1872
CELERINA, 1411
CELL, action of radiations on fluids and, (10) 1883
effect of tissue extracts on, growth of adult mammalian, in vitro, (21) 2259
proliferation of connective tissue, effect of variation in osmotic tension and of dilution of culture media on, (73) 890
CELLI, Angelo, death of, 2053
CELLULITIS, orbital, treatment of, (67) 1790
CELLULOID splints in diseases of nervous system, (37) 709, *773
CENSUS of Paris, definite results of, 1310
CENTRIFUGAL separator with automatic self-cleansing mechanism, continuous type of, (34) 278
CENTROSCOPE, roentgenographic episcope and, (31) 2076
CEREBELLUM abscess, (33) 1421
abscess, diagnosis and treatment, (10) 2164
abscess with atypical symptoms, (21) 273
angioma in peduncle, fatal intracranial hemorrhage, (42) 279
artery, posterior inferior, occlusion of, *1550
hemiatrophy of, in cantatonia, (60) 1326
labyrinth and, (48) 1880
Purkinje cells in, method of counting, 10 clinical cases, (24) 2260
surgery, (54) 275
symptoms and localization of, including kinematographic observations on cerebellar phenomena, *1813
syndrome of Babinski, (56) 1981
CEREBRAL embolism, traumatic paradoxic, (77) 2168
CEREBRAL embolism, increased pressure in, in eye diseases, (73) 2080
new facts about, 1037—E
operative treatment of hydrocephalus by diversion of, (37) 1238
origin and circulation of, (15) 1604
potassium content of, in various diseases, (25) 1695
potassium permanganate reaction in pathologic, (119) 205
pressure, measurement of, (65) 434, (45) 515
studies on, (42-48) 1506
CEREBROSPINAL FLUID, 1764—E
absorption of, 1057—E
and its relation to brain tumors, (97) 198
and nervous system in secondary syphilis, (31) 1135
antibody in syphilitic, source of, (146) 437
cell counts in untreated cerebrospinal syphilis, (54) 1981
cerebral, method of mingling remedial agents in, (23) 65
changes in, after injection of neosalvarsan, (105) 713
colloidal gold reaction in, (120) 205, (7) 426, (80, 81) 1881, (100) 2081, 2138—E
drainage of, (43) 1506
dual source of, (45) 1506
examination and rachicentesis in meningitis in children, (25) 513
examinations in cured syphilis, *550
findings and general nervous symptoms early in syphilis, relations between, (198) 362
glycosuria induced in dog by intravenous injection of, from acromegaly patient, (67) 434
in acute nephritis in children, (109) 1888
in intracranial surgery, *287
sources of, 2232—E
CEREBRUM, arteries of, spasmodic closing of, and cerebrum hemorrhage, (2) 1053, (27) 1054
arteriosclerosis of, (141) 1328
atrophy of convolutions, aphasia due to, (5) 1792
cortical connections of red nucleus, (1) 1694
cyst of left hemisphere of, operation for, *1649
cyst without localizing symptoms, (12) 278
electric treatment of diseases of, (1) 1883
fluid in eye and, analogous processes in, (48) 1506
Hemorrhage: See Brain, Hemorrhage
in insanity, increase of total nitrogen and urea nitrogen in, (43) 2072
syphilis in secondary stage, (68) 1137
tuberculosis of crus, simulating enteric fever, (40) 200
tumor of crus, *1662
CERTIFICATE, requirement as to record of, 345—Ml
CERTIFICATION, medical, other than under lunacy acts, (2) 973
CERVICAL RIBS, (96) 892
brachial neuritis and, (48) 197
double, nerve symptoms of, 1976—ab
surgical aspect of, (49) 197
CERVICITIS, gonorrheal, and endometritis, pathology and treatment, (2) 349
CESAREAN SECTION, (25) 1231
abdominal, (115) 608, (32) 1880
abdominal, for contracted pelvis in child of 12, (95) 62
abdominal, for eclampsia, 500 cases of, (1) 349
analysis of 60 cases, (22) 605
classic, 30 cases, (242) 363
extraperitoneal, 5 cases, (23) 1231
extraperitoneal, technic for, (22) 1231
fistula, tardy, (64) 711
for double multilocular ovary cyst, (110) 62
for eclampsia, (123) 1234
for placenta centralis, (83) 607
for pregnancy complicated by morbus cordis, spinal anesthesia in, (15) 64
high forceps and, (46) 1325
high incision in, (56) 2161
impassable contraction of gravid uterus verified by, (120) 198
in primipara with ovarian cyst, (10) 1235
mortality in, (7) 1230
CESAREAN SECTION, pelvic chondrosarcoma and, (13) 887
removal of uterus instead of, in infected cases, (118) 1705
rupture of uterus through scar of old, (7) 1507
third, at term, twins, (66) 711
with hysterectomy under spinal anesthesia following rupture of uterus, (83) 607
CHAGAS' disease, triatoma transmitting, (115) 1889
CHAIR, obstetric, revival of, (27) 1231
CHAMPAGNE, how it is made, 1970
CHAMPETIER DE RIBES bag in obstetrics, use of, (94) 608
CHANCRE, lip, with early involvement of nervous system, (97) [illegible]
salvarsan, and soft, (71) 1511
soft, and primary lesion of syphilis, differentiation, (142) 205
CHAPOTEAUT'S Wine, 2247—P
CHARCOAL in wound dressing, (165) 361
CHARITY, medical, and medical legislation, (66) 707
CHARLOTTENBURG public hospital, special treatment in, 496
CHATTANOOGA Medicine Company, 961—P, 1038—E, 2058—P
CHAULMOOGRA oil mixture for leprosy, (8) 2258
CHEILITIS exfoliativa, (53) 606
CHEILOTOMY, case of, (20) 517
CHEMICALS, patents expiring on certain, 693—E
CHEMOTHERAPY of cancer, 33—E, (257) 364, (69) 613
CHENOPODIUM, oil of, in uncinariasis, 1875—ab, *1946
CHESS players, famous, mental states in, (78) 1881
CHEST: See Thorax
CHESTNUTS, toxemia due to, *30
CHEYNE-STOKES breathing, prolonged, case of, (44) 433, (47) 710
CHIASMAL and mean cyclopean images, (102) 608
CHICAGO Journal on "Live stock versus quail," 1959—E
Winfield Tuberculosis Sanatorium, (110) 971
CHICKEN-POX, organism of small-pox, vaccinia and, (72) 605
skin reaction in differentiation of small-pox and, (69) 1702
CHILD Labor, conference on, 2229
labor, progress in legislation against, 1963
life, conservation of, (102) 892
manslaughter in failure of parent to provide for, 2309—Ml
welfare association, Arkansas, (85) 1138
welfare at Museum of Hygiene, 335
welfare forces, unification of, (98) 608
CHILDBEARING: See Labor
CHILDREN, acidity of stomach contents in infants and, on milk and meat test diets, (103) 814
actinomycosis, lung, primary in child of ten, (1) 887
anaphylaxis and status lymphaticus in relation to intensified types of diseases in infants and, (14) 432, (13) 894
anemia, pernicious, in, (82) 712
anemia, simple, diagnosis and treatment of, in young, (46) 612
appendicitis in, (121) 1608
ascites, acute chylous, in boy 8 years old, (2) 426
asthma, cardiac, in, (62) 2167
asthma in, and egg poisoning, (26) 1880
ataxia, cerebellar, (58) 434, (119) 519
bacillus coli infection of urinary tract in, (3) 278
blindness in 1100, causes, (5) 1139
blood composition and constitution of child's body in relation to nutrition and weight, (67) 1988
blood-pressure in normal, (192) 362, (1) 1502
blue spot in, (109) 2169
body temperature in, clinical aspects of, (2) 354
bronchial lymph-nodes in, diagnosis, significance and treatment of, (44) 889
bronchitis, recurrent, in, (113) 1608, (14) 1979
bronchoscopy, nails removed from bronchi of child two years ago by, (124) 971
burns, mortality from, 1486—E
cancer of liver, primary, in child 3 years old, (28) 611
CHILDREN, care of young, [illegible] 512
chlorosis in girl of six, (31) [illegible]
cholecystitis, acute [illegible], (29) [illegible]
[illegible] in girl of six, [illegible]
chorea, [illegible] signs, (15) 57
club foot, [illegible]
[illegible]
[illegible] (42) 1352
[illegible]
[illegible]
deaf, and [illegible], (59) 2162
diarrhea, acute, [illegible]
diarrhea [illegible] (29) 64
[illegible]
[illegible]
[illegible] 435
dysentery, amebic, in, *1725
dysentery, bacillary, [illegible]
dysentery, [illegible] treatment, [illegible]
ear, [illegible]
[illegible]
eczema in infants and causes and treatment of, (91) [illegible]
[illegible]
emphysema in, (12) 432
endocarditis in, (25) 1625
enuresis in, 1417—ab
enlargement of, [illegible]
[illegible] in blood of, (125) [illegible]
[illegible] in, (28) [illegible]
[illegible] in infants and, (102) 814
exceptional, (122) 1175
exceptional development, determination of, (127) 2164
exceptional development in, [illegible] tal tests to determine, [illegible]
eye defects, congenital, [illegible]
eyes and eyesight of, (1) 972
eyesight influenced by [illegible] 885—ab
feeble-minded, [illegible]
feeble-minded, care, treatment and training, (81) [illegible]
feeble minded, nervous and mental findings in, (76) [illegible]
feeble-minded, training of, gratifying results, [illegible]
fracture of humerus, supracondyle, peculiar healing, [illegible]
fracture of radius, lower end, [illegible] 282
gastro-intestinal bacteria of healthy, 952—E
heart muscle and syphilis in, (101) 814
heart, valvular disease in infants and, (165) 429
heart weakness, acute infectious, epinephrin and pituitary extract for, (147) 284
hemoptysis in child 4 years old, fatal, (6) 1126
hernia, duodenal, in child, (9) 431
hernia, inguinal, paraffin and wax shield in, (94) 920
hip traumatisms in adolescents and, (26) 1137
hospital for, at Los Angeles, new, (115) 971
hospital for, Charles Dickens on, 342—ab
hospital for, Toronto, 1509
hysteric mechanisms in, (18) 801
infectious diseases, acute, treatment, (141) 260
influenza in, manifestations of, (112) 1608, (12) 1979
intestine, catarrh in, chronic, treatment of, (75) 1432
intestine flora of infants and young, (26) 278
intestine indigestion in, in production of epilepsy, 1133—ab, (60) 2161
kala-azar in, blood in, (122) 1769
kala-azar in, in Naples, (111) 2169
kidney disease in, (59) 1332

CHILDREN, leukemia, lymphatic, in child of 3 years, (6) 512
liver, atrophy of, subacute, (5) 1426
mastoiditis in, 2 unusual cases, (9) 1139
medical examination of, in Canal Zone, 1681
meningitis in, rachicentesis and examination of cerebrospinal fluid in, (25) 513
meningitis, recurrent, due to lead, in child of five, (6) 1787
nephritis in, cerebrospinal fluid in, (109) 1888
neosalvarsan for, (63) 2078
nephritis in, latent hypertrophy of heart in, (23) 1695
ovarian cyst in, (68) 202
paralysis in, diagnosis of, 1501—ab
pellagra, English, in young, (8) 1139
peritonitis, streptococcus, (39) 514
pneumonias, atypical, of infants and, (127) 1328
pneumonias of, (168) 973
polyarthritis, chronic, in, (59) 2161
pseudarthrosis in, (108) 282
psychology and education, 931—ab
psychopathic, (37) 1605
psychotherapy for, (197) 362
pyelitis in, (107) 1426
pyelocystitis in, (121) 359
rachitis in, histologic examination *of musculature in*, (54) 1987
respiration, defective, in, (57) 897
rheumatism in, (43) 438, 1502—ab
rhinolith in child of eight, (91) 1607
roentgenography in diagnosis of diseases of, (50) 60
roentgenoscopy in fractures of cranium in, (132) 971
sarcoma of both ovaries in child of three, 1978—ab
sarcoma, primary round-cell, in both kidneys in girl of eight, (67) 898
School: See also School, Medical Inspection of
school, defects and diseases in, significance, (57) 1055
school, ear diseases in, economic importance, (97) 608
school, flying clinics in treatment of, 1780—ab
school, hearing capacity of, (121) 520
school, hypothyroidism in, symptoms of, (25) 1236
school, lunches for, (85) 1982
school, personal hygiene of, 2228—T
school, regular measuring and weighing of, 496
school, trachoma in, prophylaxis of, (104) 2081
school, tuberculosis problems in, (43) 805
sclerosis, multiple, in boy of 12, (49) 612
sleep disturbances in, (194) 362
spleen enlargement in infants and, (16) 704
splenic anemia in, (94) 1888
stammering, problem of, (58) 890
syphilis, congenital, *diagnosis* of, in infants and, (91) 1327
syphilis, luetin test for, inconveniences, (37) 356
tachycardia, paroxysmal, in child *of 3 years*, (1) 277
teeth of American, German-American, and Filipino children, (3) 2159
tendon reflexes in infants and, physiology of, (66) 1988
thorax in, examination of, (5) 1134
trachea, non-diphtheric stenosis in, (81) 1331
tuberculosis, (4) 609, (21) 1230
tuberculosis, absorption of fat from intestine tract of, (6) 1135
tuberculosis, albumin content of blood in, (223) 363
tuberculosis, anaphylaxis in and alexin content of blood serum, (110) 2169
tuberculosis class at sanatorium, (18) 704
tuberculosis, cutaneous manifestation of, in, (86) 1615, (73) 1702
tuberculosis, diagnosis, (66) 2167
tuberculosis, diagnosis and treatment, (19) 1230
tuberculosis, early, and bovine tuberculosis, relation between, (3) 1135

CHILDREN, *tuberculosis in infants* and, post-morten examinations, (5) 1787
tuberculosis, latent, (77) 68
tuberculosis, lung, (104) 70
tuberculosis, lung, chronic, diagnosis of, in infants and, (4) 1328
tuberculosis, mixed viruses in, (115) 714
tuberculosis, negative experiences with Rosenbach's tuberculin, (68) 357
tuberculosis of genitalia in little girls, (94) 1704
tuberculosis of lymph-nodes in, bacteriologic study of, (3) 1235
tuberculosis of tracheobronchial lymph-nodes in, (150) 1328, (65) 1988
tuberculosis, Pirquet and salve tuberculin tests for, (123) 1244
tuberculosis, prevention of, 956, (32) 1980
tuberculosis problems in, (50) 1506
tuberculosis, roentgenography in, (20) 1230
tuberculosis, surgical, (2) 1699
typhoid, clinical study of, (4) 887
typhoid, high caloric diet, in infants and, 55—ab
typhoid, 3 in one family taken with, the same day, (136) 72
typhoid, unusual complications, (104) 1243
typhoid vaccination in, (89) 608
ulcer of stomach before puberty in, (142) 1608
urinary tract in young, purulent disease of, (121) 1706
urine, ammoniacal, in infants and, clinical significance, (100) 429
urine analysis in diseases of infants and, *1802
vesicovaginal fistula in child of 8, spontaneous cure after re*moval of hairpin, (8) 349*
vomiting, cylic, causes, (69) 434
vomiting, cyclic, presence of lactic acid in urine in, (3) 887
vulvovaginitis, prevention and treatment, (3) 1604
vulvovaginitis, vaccine therapy of, (37) 514
weights and measurements of infants and, in private practice compared with institution children and schoolchildren, (1) 1787
CHILOMASTIX mesnili, colitis due to, 5 cases, (72) 1144
CHIN, hereditary malformation of nose and, with exophthalmos *and strabismus*, (19) 1141
CHINA appeals for aid for sufferers from famine and drouth, 1309
medical work in, (22, 26) 427
CHINEONAL, fatal poisoning from, (65) 1431
CHINESE, *ginseng* regarded as panacea by, 1486—E
students, physical condition of, 1975—ab
CHIROPRACTORS, association of, no charter for, 54—Ml
practice of medicine by, 800—Ml
CHLAMDOSPORES, formation of, in sporothrix Schenckii, (87) 2162
CHLORAL in tetanus, large doses of, (19) 2262, (35) 2312
CHLORIN bleached flour gives bread objectional color, 1959—E
liquid, and water sterilization, 327—E, (46) 2073
CHLOROFORM and ether anesthesia, effect of, on protein contents of blood serum of rabbits, (93) 970
anesthesia and heart fibrillation, (11) 1427
anesthetic action between ether, *magnesium* salts and, 584—E
donations of, 1589
intratracheal insufflation administration of, (30) 2165
ventricular fibrillation and cause of death under, (13) 1427
CHLOROMA, (26) 509
in girl of six, (91) 1888
myeloblastic tumor, (81) 435
of myeloid variety, (10) 194
CHLOROPHYLL test of gastric motility, (42) 2072
CHLOROSIS, Abderhalden serodiagnosis in, (146) 284
roengenotherapy of, (244) 363
CHOLECYSTECTOMY, disturbances after, (54) 1061
recurrence of gall-bladder calculus after, (101) 1064

CHOLECYSTITIS, acute non-calculous, in children, (29) 355
bacteriology of, and production by injection of streptococci, *1835
CHOLECYSTOGASTROSTOMY, 1320—ab, (19) 2070
CHOLECYSTOSTOMY in cholelithiasis in lieu of cholecystotomy, (6) 199
CHOLEDOCHOTOMY, transduodenal and retroduodenal, for calculi *in common bile-duct*, (38) 279
CHOLEDOJEJUNOSTOMY, anterior, report of case, (130) 892
CHOLELITHIASIS: See also Gall-Bladder Calculus
CHOLELITHIASIS, (91) 1982
cholecystotomy in lieu of cholecystostomy, (6) 199
cholesterin content of blood in diagnosis of, *146
effects of 40 years of, (62) 1790
pregnancy and, 4 cases, (73) 1790
surgery in, ultimate results, (1) 1978
CHOLERA, 1589
and war, 1487—E, 1490
Asiatic, cockroaches and ant as carriers of, (116) 430
Asiatic, kidney lesions of, and nephritis and acidosis, (4) 1053
Asiatic, treated at San Lazaro Hospital, (124) 198
bolus alba in diarrhea, dysentery and, (67) 1796
contact infection unimportant in spread of, (34) 1510
diagnosis and prophylaxis, (102) 2081
diagnosis of typhoid and, in field laboratory, (20) 2311
emetin chlorhydrate in, hypodermic injections, (30) 709
gall-bladder and bile-tract lesions in, (2) 1983
hog, salvarsan in, negative results, (212) 362
immunization, 1490
in Galicia, 1774
in Manila, 1308
in Philippines during 1913, (68) 1982
iodin, intraperitoneal injection of, (18) 1236
pneumonia in, (1) 1983
prophylaxis of, (51) 1330
saline solution, transfusion of, *1200
serotherapy of, in Greece, (75) 1988
serum, antihog, standardization of, (20) 1504
service, Russia organizing corps for, 957
sterilization of intestine against, (113) 2170
treatment of, (60) 2079
vaccination against typhoid and, 1218, (67) 2079
vaccination of troops against, 1682
vaccination, prophylactic, in Greece, (104) 713
vibrio, invasion of tissues by, (1) 1983
CHOLESTEATOMA of mastoid, (132) 1698
CHOLESTERIN antigens in Wassermann reaction and quantitative testing of syphilitic sera, (13) 1323
content in blood and resisting power of red corpuscles in anemic conditions, (123) 1706
content of blood in diagnosis of cholelithiasis, *146
content of serum in dermatology, (154) 438
e ters in urine, (87) 1615 (86) 2169
fortified antigen, results of salvarsan in syphilis judged by Wassermann reaction using, (62) 1137
heart antigen proposed by Walker and Swift, (50) 706
influence of, on resisting power of red blood-corpuscles, (118) 1889
metabolism in pregnancy, experimental study of physiology and pathology of, (79) 435
specificity of, with syphilitic serums and cholesterin-reinforced *heart antigen* in Wassermann reaction, (28) 1695
sugar and uric acid in blood, quantitative estimation, (70) 509

CHOLESTERINEMIA in lung tuberculosis, (165) 2169
CHOLESTERINEMIC index, clinical estimation of, (86) 61
CHOLESTERINIZED and non-cholesterinized artificial antigens in Wassermann reaction, comparison of, *313
CHOLESTEROL, effect of, on phagocytosis, (86) 2162
in arteriosclerosis, (112) 204
in body, fate of, 586—E
normal and pathologic occurrence of, 868—E
serum, and Wassermann reaction, (44) 706
CHONDRECTOMY for bronchial asthma, *1065
CHONDRIOSOMES, biology of, (183) 439
CHONDRODYSTROPHIA: See Achondroplasia
CHONDROFIBROMA, polypoid, of fallopian tube with extra-uter*ine pregnancy*, (12) 888
CHONDROMA: See Enchondroma
CHONDROSARCOMA, pelvic, cesarean section for, (13) 887
CHOREA and rheumatism, relation between, (7) 354
diagnostic and prognostic signs of, *in children*, (15) 59
during pregnancy, (116) 519
eosinophilia in, (85) 607
handwriting in, (124) 283
Huntington's synonyms, (66) 1982
Huntington's, value of eugenics in, (92) 429
investigation of 100 cases of, (121) 276
rachicentesis in, (86) 2080
voice sign in, (2) 193, (3) 1502
CHORIO-EPITHELIOMA: See Deciduoma Malignum
melanosarcoma of, (62) 1055
sarcoma, (61) 1055
CHORIOID, angioma of, simple, (36) 2072
CHORIOIDITIS, metastatic, with streptococci in vitreous, (87) 509
CHORION, fibromyxomatous degen*eration of, with macerated fetus*, (83) 607
CHRISTIAN Science, challenge to, 1357—ab
Science, publications on, 51
Scientist, practice of medicine by, 1052—Ml
CHYLURIA, nitrogenous metabolism in, (12) 1140
CHYMOSIN, chemical action of, (130) 2170
CICATRICES, fibrolysin for old contracted, (26) 1605
CINCHONA derivatives inquiry, (9) 1984
CINEMATOGRAPHY of antrum pylori and first part of duodenum, (2) 1883
stomach and duodenum, 1419—ab
CIRCULATION, acute, systolic and diastolic blood-pressure in diagnosis of condition of, (137) 1235
advances in knowledge of, and attributes of blood and, since Harvey's time, (28) 1884, (32) 1985
carbonated baths and, (103) 713
chronically weak, (82) 1512
collateral, testing before occlusion of arteries, *1441
disturbances of, of extremities, (12) 2309
during hemorrhage, *pathologic* physiology of, (10) 603
failure of, in diphtheria intoxication, 37—E
impeded in inferior vena cava, congested veins in back with, (81) 1145
in kidneys following ligation of ureter, (78) 890
modification of, in cirrhosis of liver with ascites, (43) 895
symptomatology of condition of, (110) 1064
thermal baths, effect on, (100) 69
CIRCUMCISION in masturbation of female infants, (7) 887
new method of, (161) 893
CIRRHOSIS, Liver: See Liver, Cirrhosis
CITY planning and influence on public health, (134) 276
practical sanitation for towns and small, (141) 431
CLADOTHRIX, streptothrix and actinomyces, differentiation of, (68) 1511

CLAMP to facilitate suture anastomosis of hollow viscera, (153) 276
CLARION, The, by S. H. Adams, attitude of Binghamton newspapers and book-store proprietors toward, 2049—E, 2062—C
CLARK epigram distributed by Iowa Board of Health, 1490
CLAUDICATION, cerebral, intermittent, (107) 1888
  intermittent, syphilis, tobacco and alcohol as factors in, (70) 280
CLAVICLE, excision of first rib and, for malignant tumor, (140) 277
  fractures of, 268—ab, (42) 2260
  fractures of, evidence and damages in action for malpractice in, 1691—Ml
  presternal dislocation of, (79) 1887
  retrosternal dislocation of, (31) 1141
  tuberculosis of, (21) 975
CLEANLINESS and progress, 1149—ab
CLEVELAND Medical Journal on Prof. Kronig and twilight sleep, 601
CLIMACTERIC: See Menopause
CLINICAL Congress of Surgeons of North America, meeting of, 254, 493, 591, 696
CLINICS, dental, (21) 354
  eye, for working people, self-supporting, (41) 2072
  European, (120) 1327
  out-patient, organization of, (23) 59
  surgical, eastern, impressions of, (153) 972
  surgical of Russia, Finland, Sweden, Norway, Denmark and Belgium, (42) 1177, (72) 1233
CLUB-FOOT: See Talipes
COAL-MINING industry, hygienic aspect of, in United Kingdom, (37) 279
COBRA, Wassermann and globulin reactions in syphilis, comparison of, (79) 1326
COCAIN and adrenalin, surface anesthesia, (97) 1507
  eaters of Bombay, (24) 709
COCCI, questions of correct language, 2063
COCCIDIOIDES immitis and coccoidal granuloma, (38) 705
COCCOBACILLUS exanthematicus, (83) 1614
COCCYGODYNIA, alcohol injections in, (55) 1137
COCHLEA, stria vascularis of, embryologic-anatomic study of, (80) 1145
COCKROACHES, Asiatic cholera carried by ants and, (116) 430
COD-LIVER oil and vegetables superior to butter and cream in infant feeding, (111) 359
CODY, S., (102) 510
COLCHICIN, paralysis from long use of, (54) 202
COLD, hyperleukocytosis from action of, (60) 1331
  protection against, for soldiers in field, 2254—ab
COLDS: See also Rhinitis
COLDS, filtrable virus responsible for coughs and, (91) 614
COLECTOMY for cancer, (41) 611
  for cancer, technic for exteriorization in, (47) 612
COLEY mixed toxins in sarcoma, effect of, (14) 803
COLIC, recurring, in umbilical cord region in children, (82) 1332
COLIFORM organisms, gas formation by, (24) 1428
COLINEPHRITIS, suppurative, case of, (11) 2075
COLITIS, acute ulcerative, fatal, (25) 1059
  due to chilomastix mesnili, 5 cases, (72) 1144
  irrigation through appendix in, (66) 1702
  membranous and mucous, chronic, (86) 1607
  subacute dysenteric, treatment of acute and, (44) 1986
COLLARGOL in pyelography, *1387
  injections, dangers of, *523
  preparations of spirochetes, durable, (56) 1143
COLLEGES, American, health services in, *1926
  California Medical, requires intern year, 1224
  medical, classified, 669
  medical, closed during year, 681
  medical, elimination of inferior, resulting in better qualified physicians, 692—E
  medical, fewer students, graduates and, 691—E
  medical, higher preliminary requirements, 1224
  medical, large and small, 1118—E
  medical library, value to student, *655
  medical, licensed through reciprocity, 1049
  medical, of United States and Canada, statistics of, 672
  medical, of United States, statistics for 1913-1914, 657
  medical, standard of entrance requirements to, in 1904 now essential minimum, 1485—E
  medical teachers, why not exchange of, 1485—E
  of liberal arts, standardizing, 1584—E
COLLOID compound of strychnin and its pharmacology, *1933
  degeneration of skin, (74) 1697
  solutions, pharmacology of, (76) 812
COLLOIDAL gold reaction in cerebrospinal fluid, (120) 205, (7) 426, (80, 81) 1881, (100) 2081, 2138—E
  metal, intravenous injections of, in puerperal infection, (52) 811
  nitrogen compounds in urine in cancer, (58) 1332, 1584—E
  silver, technic for intravenous injection of, (50) 1512
COLON, auscultatory inflation of, (101) 198
  cancer, intestine obstruction due to, (144) 1608
  congenito-mechanical dilatation of, (94) 892
  resection, technic for, (69) 434
  stasis, 1786—ab
  stasis, experimental and clinical studies of, *441
  torsion of movable cecum, ileus and, (30) 1141
COLOPROCTITIS, chronic ulcerative, appendicostomy in, (104) 1138
COLOR index of red blood-corpuscles, (13) 601
  sense, self-recording device for testing, *1030
  test for uric acid in urine, (117) 714
  test with dialysis serodiagnosis, (84) 317
  test with reference to Stilling's plates, (119) 1882
COLORADO medical news, 172, 250, 328, 874, 1212, 1305, 1409, 1862
  state board April report, 266
  state board July report, 1972
COLOSTRUM, toxicity of urine, serum and, in pregnancy, labor and puerperium, (64) 812
COLPORRHAPHY, anterior, modification of, and amputation of cervix uteri, (16) 1854
COMMITTEE document from United States senate printed for use of committee on public health and national quarantine sent to newspapers, 689—E
COMMUNICATIONS to physician, what constitute and waivers of privilege, 1785—Ml
COMPLEMENT BINDING: See Serodiagnosis
COMPLEMENT FIXATION: See Serodiagnosis
CONCEPTION: See Fecundation
CONFINEMENT, continuous, within house, and insurance, 507—Ml
CONGLUTINATION by Karvonen's technic substitute for Wassermann reaction, (81) 1797
CONGRESS for Advancement of Science, 593
  International, war interferes with, 590
  medical, postponed, 1124, 1215
CONJUNCTIVA, bacteriologic examinations of, (127) 1608
  excision of tarsal cartilage and, in old trachoma, (70) 353
  hemorrhage in typhoid, (105) 608
  not sterile in newborn infant, (112) 1334
  palpebral and ocular, surgical treatment of acute and chronic diseases of, (64) 275
  tuberculosis of, (121) 1698
CONJUNCTIVITIS, acute contagious, originating in public swimming pool, (70) 707
  local anesthesia to combat photophobia with, (126) 205
  phlyctenular, (112) 354
  Samoan, (138) 1328
  squirrel plague, in man, (135) 1608
  with pigmentation, (48) 201
CONNECTICUT eclectic July report, 1597
  homeopathic July report, 1597
  medical news, 39, 172, 490, 1212, 1505, 1960, 2236
  state board July report, 2064
CONSTIPATION, chronic, 168—E
  chronic, aperient before roentgenoscopy of intestine in, (2) 1609
  electric massage in, (63) 279
  exercise, and, self-massage for chronic, *1669
  fat, in artificially fed infant, (56) 275
  ileosigmoidostomy for intractable, (77) 203
  b-iminazolylethylamine formed in ileum in, (47) 432, (50) 710
  is it an evil? (72) 509
  operative treatment of, (31) 514
  parafin for, (101) 1138
  petrolatum in, (56) 356
  [illegible] for classifi- [illegible] (123) 283
  [illegible] 710
CONSUMPTION: See Tuberculosis, Lung
CONTAGIOUS DISEASES among hospital employees, 46—ab
  dissemination of, 2132—T
  in army, prophylaxis of, (59) 1510
  in Denver during 1913, (61) 2161
  isolation in, (125) 616
  management of, (181) 973
  nurses for, *1811
  prevention of, in general hospitals, *1941
  problem of, (53) 1703
  prophylaxis of, 1477—T, (52) 1701
CONTRACT PRACTICE: See Practice, Contract
CONTRACTURES, congenital, of fingers, (123) 892
CONVALESCENT homes for soldiers, (115) 1705
CONVERGENCE insufficiency, *721
CONVULSIONS, afebrile, in infants and children, diagnosis and treatment, 57—ab, (79) 1506
  epileptoid, in alcoholics and genuine epilepsy, (66) 1880
  in whooping cough, (117) 2032, (120) 2164
  intestinal putrefaction and, (49) 2160
COOK county psychopathic hospital, new, (57) 1880
COOLING, artificial, of sick rooms in summer, 132—ab, (6) 887
COPPER and mercury lamp in rodent ulcer, (74) 613
  in tuberculosis, (90) 2162
  poisoning, chronic, from alloy filling of tooth, (80) 812
CORNEA, congenital diffuse noninflammatory opacity in 2 sisters, (4) 277
  conical, new operation for, (161) 973
  hemosiderin ring of, in keratoconus and hemosiderosis, (46) 2072
  peripheral pigmentation of, with symptoms simulating multiple sclerosis, (8) 967
  regeneration, (85) 517
  splitting, extensive accidental, [illegible] 2072
  staphyloma, sclerocorneal trephining for, (9) 64
  tuberculosis, experimental, [illegible] 1136
  ulcers, etiology and treatment of, (100) 708
CORONER'S case, definition of, 1120
  inquest, necessity for [illegible] (28) 2077
CORPORA quadrigemina, [illegible] diagnosis of, [illegible]
CORPORATIONS not liable for [illegible] tendance on injured [illegible] 2057—Ml
CORPUS callosum, [illegible] epilepsy and [illegible]
  callosum, [illegible] rheal [illegible]
  callosum, [illegible] (41) [illegible]
  luteum and [illegible]
  luteum, [illegible]
  luteum [illegible]
  luteum in ovulation and menstruation, (60) 811
  luteum, rupture of, with intraperitoneal hemorrhage, (5) 1230
  striatum, anatomy and physiology of, experimental research, (4) 1791
CORTI, Alfonso, a submerged histologist, 1676—E
  Alphonso, correspondence, 1872—C
COSMETIC field in medicine, (112) 282
COSMOPOLITAN magazine on painless childbirth, 2233—E
COTTON dressings, need for economy with, (82) 2070
  waste, sanitary receptacle for, *1669
COUGHS, filtrable virus responsible for colds and, (91) 614
COUNTENANCE, human, clinical significance of, (66) 2073
COUNTY health organization in United States, *1739
  medical society, (65) 890, (80) 891
  medical society, purpose of constitution and by-laws of, (166) 973
  medical society secretary, (97) 1325
  not liable for cost of operation on prisoner, 507—Ml
COURTS, medicopsychologic work in, (63) 1880
  without power to order physical examinations, 1227—Ml
COVER-GLASSES, breakage of prevented, (130) 205
COWS, milk of different breeds of, 2235—E
COXA vara, (99) 1063
COXITIS, relation of intestinal derangements and posture to, *2199
CRANIAL nerves, rhinogenic and otogenic lesions of 3d, 4th, 5th, 6th, (18) 278
CRANIOTOMY, (83) 510, (24) 1231
CRANIUM, arteriovenous aneurysm, intracranial, affecting both eyes, (16) 2165
  defects, bone graft for, (166) 1693
  diseases from ear, (46) 2260
  fractures of, in children, roentgenoscopy in, (132) 571
  gunshot wounds of, (164) [illegible]
  hemorrhage in infant, *1710
  injuries, treatment of, by drainage through subtemporal approach, *863
  intracranial pathology and fundus changes, (21) 1135
  lesions, early operative treatment for, (127) 1274
  murmurs, intracranial [illegible]
  pressure within, (25) 427
  roentgenography, technic for, [illegible] 611
CREATIN and creatinin, [illegible]
  elimination of creatinin and [illegible] diabetes and nephritis, [illegible] 2162
  exercise, water ingestion and excretion of creatinin and [illegible] 1427
  in urine, test for, [illegible]
  precipitation of [illegible] from urine [illegible]
  [illegible]
CREATININ and [illegible]

- CRIME, ganja as cause of insanity and, in Bengal, (23) 2165
  - habit-producing drugs and, (27) 427
  - head injury and syphilis cause of, (28) 427
  - juvenile, and neglected children, (101) 1146
  - laboratory in study and treatment of, (45) 2160
  - physical bases of, (19) 427
  - psychologic aspects of relation of divorce, accidents and, to mental defects, (87) 275
- CRIMINAL and the antisocial diathesis, 187—ab
  - courts, municipal, of Boston, analysis of 100 cases studied in, (54) 969
  - innocent, (121) 1234
  - pathologic characteristics of habitual, (42) 1880
  - responsibility, (115) 814
- CRIPPLED soldiers, school for, 2241
- CRIPPLES, welfare commission for, 42
- CROTALIN at Oakburne epileptic colony, experiences with, (113) 1234
  - in epilepsy, (90) 62, (104) 1327, *1749, 2151—C
- CROZIER, W. J., a quack, 418—P
- CRUZ, Oswaldo, medal for, 696
- CRYING, intra-uterine, of child during labor, 184—C
- CULTIVATION of bacilli prefering conditions of partial anaerobiosis, simple method of, (26) 804
  - of bacteria requiring anaerobic conditions, notably pathogenic spirochetes, in fluid media containing coagulable albumin, (22) 1985
  - of human cancer-cells in vitro, 191—ab
  - of human sarcomatous tissue in vitro, (74) 891
  - of hydrophobia parasite, (75) 812, (102) 1983
  - of rinderpest virus in vitro, experiments of, (118) 430
  - of spirochete of syphilis, (101) 1990
  - of tissue cells outside the body, (193) 286, (107) 2081, (133) 2170
- CULTURE media, bile, favorable for Malta fever germs, (163) 438
  - media, dilution of, effect of variation of osmotic tension and, on cell proliferation of connective tissue, (73) 890
  - media, dry, bouillon cubes as portable, (38) 1510
  - media without prepared peptones, (32) 1700
- CURET, abuse of, (16) 1054
  - for endotympanum, (126) 1698
- CYCLOPIA, case of, (8) 431
- CYLINDERS, crossed, are they scientific aid in refraction, (68) 1056
- CYMARIN, 1393
- CYPRIDOL capsules refused recognition by Council, 2247—P
- CYSTS, bones, metacarpal, following trauma, clinical recognition, *2272
  - cecum, causing intestinal obstruction in infant, care of, (5) 277
  - cerebrum, left hemisphere of, operation for, *1649
  - cerebrum, without localizing symptoms, (12) 278
  - dentigerous, (77) 509
  - Dermoid: See Dermoid Cyst
  - Echinococcus: See Echinococcosis
  - liver, (116) 608
  - liver, non-parasitic, case of, (45) 279
  - ovary, cesarean section in primipara with, (10) 1235
  - ovary, double, (22) 1884
  - ovary, double multilocular, cesarean section for, (110) 62
  - ovary, hydatidiform mole with, (90) 1616
  - ovary, in 2 children, (68) 202
  - ovary, retro-uterine hematocele from rupture of, (29) 65
  - ovary, ruptured, (73) 353
  - ovary, torsion of, 1320—ab
  - pancreas, (95) 1146, (4) 2309
  - peritoneum, of traumatic origin, (16) 354
  - retroperitoneal, (115) 436
- CYSTADENOMA of ovary, pseudomucinous, clinical malignancy of, (7) 350
- CYSTECTOMY, subtotal, *2268
- CYSTICERCUS bovis, destruction of vitality of, by freezing, (65) 1424
  - of carnivore tapeworms, ingestion by man of, (71) 1424
- CYSTINURIA, sodium bicarbonate in, effect of, 407—E
- CYSTITIS, (93) 1982
  - diagnosis, incomplete, (20) 195
  - electrolysis in, (34) 1985
  - symptom, report of cases, (15) 1054
- CYSTOGEN, Cystogen Aperient and Cystogen-Lithia refused recognition by Council, 2148—P
- CYSTOSCOPE for pleural cavity examination, (160) 438
  - in tuberculosis of bladder, (82) 281
  - use and abuse, (103) 1507
- CYSTO-SEDATIVE refused recognition by Council, 2148—P
- CYSTOTOMY, suprapubic, 1601—ab
- CYTOTOXINS, non-specificity of, 2139—E

D

- DACRYOCYSTITIS, chronic, treatment by new method, (23) 705
  - membranous closure of nasal duct and, (20) 967, (76) 2074
- DACRYOSTENOSIS, intranasal operation for, (48) 1697
- DAIRIES and milk bill and bacteriologic examination, (27) 432
- DAMAGES, duty to minimize, in traumatic neurasthenia, 2067—Ml
  - for injury from hot-water bag in operation, 344—Ml
  - for permitting wound to heal over drainage-tube, 344—Ml
  - for vaccination, 43
  - fright as element in, 1498—Ml
  - husband's, for operative injury to wife, 344—Ml
  - in action for malpractice in fracture of clavicle, 1691—Ml
  - none for mental anguish from physician's failure to attend wife, 602—Ml
- DARIER'S DISEASE: See Keratosis Follicularis
- DAUGHTERS of Empire equip hospital, 1042
- DAVIS case and Iowa sterilization law, 340—ME
- DEAF child and education, (32) 706 (99) 2163
- DEAFMUTISM, etiology of goiter, cretinism and, (110) 1889
- DEAFNESS, catarrhal, physiologic treatment of, (109) 354
  - causes and prevention, (108) 608
  - fracture of base of skull followed by, (73) 357
  - gun, 1477
  - gun, prevention, (15) 974
  - middle ear, due to chronic suppuration, radium in, (102) 275
  - prevention of, (144) 190
- DEATH, causes of, in Prussia, 497
  - certificates, confidential, 879—ab
  - diagnosis of, in war time, (55) 1701
  - from freezing, signs of, 2050—E
  - legal investigation of causes of, in Scotland, (27) 2075
  - making the end as comfortable as possible for the patient, (62) 806
  - rate a measure of intelligence, 1818—ab
  - rate in people past middle life, possibility of reduction, (49) 60
  - rate of Manila, 333
- DECIDUA, pregnancy seroreaction due to, (67) 1144
- DECIDUOMA MALIGNUM, (155) 72, (50) 274, (58) 275, (75) 517
  - cystic degeneration of ovary with, (65) 711, (90) 1616
  - radiotherapy for, (63) 1144
- DECOMPRESSION, cerebral, indications for, (29) 1055
  - sub-temporal, for relief of intracranial pressure of obscure origin, recovery, (87) 807
- DEFENSE fund, establishment of, 879—ab
- DEFORMITY, congenital, psychic complex in, (105) 1983
- DEGENERACY: See also Delinquents; Feebleminded; Idiots
- DEGENERACY, Wisconsin's fight against, (47) 1880
- DEGENERATE, plea for, (37) 200
- DEGREES in medicine, importance of uniformity in higher, 1399—E
- DELAWARE medical news, 1585
  - regular and homeopathic report, 1873
- DELINQUENCY, juvenile, articles on, 184
- DELINQUENT boy, (102) 510
  - juvenile, medical examination of, 44
- DELIRIUM tremens, morphologic and chemical study of double refractive fats of adrenals in, *2186
- DELIVERY: See Labor
- DEMENTIA PRAECOX, atypical modes of onset in, (10) 703
  - case of, (91) 1881
  - cortex lesions and anomalies in, topographic distribution and functional significance of, (10) 1878
  - diagnosis and treatment, (54) 1880
  - in 8th edition of Kraeplin's textbook, (65) 352
  - mental tests of, (74) 2161
  - metabolism in, (37) 273
  - paraphrenia and paranoia, (8) 1878
  - serodiagnosis, Abderhalden, (53) 1880
  - serum containing defensive ferment in, (63) 2073
  - treatment, (52) 1880, (85) 1989
- DENGUE, etiology of, (28) 1504
- DENMARK, food in prisons of, (120) 2082
  - venereal disease in, public measures against, (6) 894
- DENTAL schools, preparation for teaching oral surgery in, (96) 1881
- DENTIST in field, work of, (56) 1886
- DENTISTRY protheses in military surgery, (45) 1986, (87) 2080
- DEPILATION, cosmetic, (46) 2263
- DERMATITIS, amebic, (15) 513
  - exfoliativa, (74) 61, (22) 803
  - herpetiformis with pigmentation and keratoses, (65) 1982
  - Roentgen ray, acute, treatment, 1321—ab
  - Roentgen ray, chronic, treatment, 1321—ab
  - rose-pickers' (34) 1794
- DERMATOLOGY, autoserum in, *1190
  - cholesterin content of serum in, (154) 438
  - in America, future of, *133
  - radium in, relative value, *741
- DERMATOLYSIS, *2128
- DERMATOSIS, autoserum in, (88) 708
  - calcium lactate in, (75) 1697
  - in patient exhibiting neurologic and psychiatric findings, (97) 62
  - toxic, in pregnancy, injection of Ringer's solution for, (181) 286
- DERMOGRAPHISM, (82) 2168
  - of pregnancy, (27) 975
- DERMOID in mediastinum, (49) 2166
  - ovary, fatty concretions in, (5) 507
  - ovary, malignant transformation of, (20) 975
- DESICCATION treatment of tumors of skin and mucous membranes, *925
- DETENTION services, charge of ten dollars an hour for, 189—Ml
- DETROIT Saturday Night replies to argument of nostrum exploiter, 1686—P
- DEVIL driving, (25) 1700
- DEXTRIN in urine, 2063—C
  - in urine, larger percentage of, exhibiting Cammidge reaction an explanation of cause of reaction in pancreatic disease, 1581—E
  - urinary composition and derivatives of, (18) 1508
- DEXTROSE, subcutaneous injection of calcium lactate and, influence of, on blood-sugar content and tetany after thyroparathyroidectomy, (70) 1232
- DEYCKE-MUCH tuberculosis treatment, (96) 358
- DIABETES, Bronzed: See Hemochromatosis
- DIABETES insipidus, (140) 1235, (29) 2071
  - insipidus and hypophysis, (46) 515, (132) 2170
  - insipidus, function of kidney in, (68) 977
  - mellitus, *939, (140) 971, (96) 1327
  - mellitus, acidosis in, estimation of, (112) 70, (124) 520
- DIABETES mellitus after interval operations of bilateral mastoidectomy and unilateral exenteration of ethmoid, sphenoid and maxillary sinuses, (89) 1233
  - mellitus, alkali in, (126) 283
  - mellitus and alimentary glycosuria, differentiation, (9) 194
  - mellitus and metabolism, (141) 971
  - mellitus and opium alkaloids, 786—E
  - mellitus and tuberculosis, (65) 357
  - mellitus and uncinaria infection, (140) 199
  - mellitus, bacillus bulgaricus in, (86) 708, (112) 892
  - mellitus, caramel sugar in, (131) 437
  - mellitus, carbohydrates in, (121) 205
  - mellitus, cause and treatment, (100) 1063
  - mellitus, clinical forms of, (41) 895
  - mellitus, creatin and creatinin elimination in nephritis and, (93) 2169
  - mellitus, dietary treatment and sugar content of blood in, 688—E
  - mellitus, dispensary treatment of, (92) 892
  - mellitus, dried peas and beans in, (45) 811
  - mellitus, formation of glucose from dioxyacetone in, (40) 606
  - mellitus, gall-bladder calculus and, frequent coincidence of, (49) 66
  - mellitus, glucose in urine in, test to determine amount of, (11) 1139
  - mellitus, glycosuria and, in railroad employees, (118) 2170
  - mellitus, hormone treatment of, and Langerhansian hormone, (67) 197
  - mellitis, hyperglycemia in, (89) 435
  - mellitus, inulin in diet in, 326—E
  - mellitus, islands of Langerhans and, 406—E
  - mellitus, lipemia in, (124) 1706
  - mellitus, liver-pancreas syndrome in, (96) 2081
  - mellitus, operations in, (31) 65
  - mellitus, pathogenesis of, (195) 286
  - mellitus, pregnancy and, (87) 1798
  - mellitus, sugar utilization by organs from patient with, 2138—E
  - mellitus, 3 cases in one family, (18) 1979
  - mellitus, treatment of, (89) 517
  - mellitus, treatment of, 50 years ago, 2156—ab
  - pancreatic, experimental, metabolism of albumin in, (85) 2169
  - pancreatic, oxidation of sugar in, (87) 713
  - renal, (143) 360, (14) 2311
- DIAGNOSIS, ante-mortem and post-mortem, (13) 58
  - exploratory incision as aid to, (82) 509
  - importance of observation in, 845—ab
  - laboratory aids to, neglect of, (144) 971
  - mental examination of negroes and pitfalls in, (99) 198
  - mistakes and sins, 1051—ab
  - surgical, and necropsy findings, (129) 1328
  - surgical, factors necessary to make correct, (126) 1234
- DIAPHRAGM, eventration, (120) 1698
  - eventration and hernia, (49) 1060
  - hernia, (94) 435, (125) 1234
  - localization of function in spinal cord for muscles of hand, leg and, (77) 1145
  - physical signs referable to, 1877—ab
  - roentgenography of liver, spleen and, (108) 204
  - suppurating hydatid of crura, of, (9) 199
- DIARRHEA, acute, in children, (91) 807
  - bacillus bulgaricus in, (17) 704
  - bolus alba, in dysentery, cholera and, (67) 1796
  - chronic, recurrent, ascites of non-tuberculous origin in, in children, (26) 64
  - diagnosis and treatment, (127) 431
  - gastric origin, (18) 2311
  - gastrogenous, (68) 2079
  - infantile, fermentative, prophylaxis of, (97) 1425

DIARRHEA, infantile summer, prevention of, 494
  infantile summer, treatment, (102) 353
  intestinal, resection followed by, (110) 2081
  protein milk in infantile, (35) 509
  summer, (20) 705, (28) 1329
  treatment of, by anesthetics by mouth, (79) 813
DIASTASE content of urine, diagnostic import of, (156) 72
  content of urine, normal, (27) 705
  urinary, test and Loewi's reaction in pancreatic lesions, (7) 199
  urinary, test with ruptured duodenum, (13) 1609
DIASTOLIC pressure, relation of high systolic to, (33) 967
DIATHERMIA, (128) 283, (126) 520, (99) 1888
  in cancer at base of bladder treated by, (41) 279
  in gynecology, (74) 1887
  in ophthalmology, (61) 1331
  in surgery, (24) 1329
  production and use, (2) 1426, (3) 2075
DIATHESIS, hemorrhagic, treating threatening conditions in acute leukemia, pseudoleukemia and, (87) 1241
  in infants, (7) 513
  uric acid, lithium salts in, 184
DIAZO Reaction: See Reaction, Diazo
DICKENS, Charles, on children's hospitals, 342—ab
DIET: See also Dietary; Feeding
DIET, caloric value of, of sick infants, (39) 1605
  cancer and, (111) 1698
  in health and disease, (135) 1328
  in infantile scurvy, (1) 2308
  inadequate, what renders a, 1856—E
  influence of, on toxicity of substances which produce lesions of liver or kidney, *136
  influence of, on transplantable sarcoma in rats, 191—ab
  influence of, on transplanted and spontaneous mouse tumors, (42) 1798
  of mother and development of fetus, 873—E
  of mother during pregnancy, necessity for variety and liberality, 244—E
  oral prophylaxis and, (48) 1981
  pellagra and, 1114—E
  sensible, for average man and woman, (105) 276
  typhoid and, *929, *932
  typhoid, high calory, and respiratory changes, (41) 968
  typhoid, high calory, in infants and children, 55—ab
  typhoid, rational, (91) 1425
  which keeps urine alkaline wards off joint trouble, (137) 205
DIETARY, adjustment of, to economic conditions, 1033—E
  deficiency diseases in pigeons, (62) 434
  demands of body, renewed interest in, for highest efficiency, 1206—E
  established values in, (112) 1983
  for children, (141) 437
  influence of total food value of, on quantity of vitamine required to prevent beriberi, (10) 278
  principles of, (58) 2078
  treatment and sugar content of blood in diabetes, 688—E
  treatment of children during second period of life, (58) 1506
  treatment of hyperacidity, hypersecretion, and peptic ulcer, (40) 1429
DIGALEN omitted from N. N. R., 881—P
DIGESTION, disturbances of, in artificially fed infants, (11) 887
  gastric, *909
  mathematics and, 1357—ab
  parenteral protein, *365
  resistance of living tissues to, 248—E
  starch and milk, in infant's stomach, (102) 1334
  starch, in infants, *1375
  surgical disorders of, (52) 806
DIGESTIVE Tract: See *Gastro-Intestinal Tract*
DIGITALIS, activity and stability of, tincture of, (8) 278
  administration of, (63) 434
DIGITALIS, effect of gastric and pancreatic ferments on potency of tincture of, (42) 201
  heart block, (89) 2074
  in chronic diseases of heart, 270—ab, (129) 971
  orthodiagraphy for controlling action of, in therapeutics, (114) 70
DIHYDROSPHINGOSINE and sphingosine, oxidation of, (76) 969
DIOXYACETONE, formation of glucose from, in diabetic organism, (40) 606
DIPHTHERIA, (173) 973
  antitoxin in, *861, 873—E
  antitoxin in, importance of, in prevention, (83) 69
  antitoxin in puerperal infection, (162) 438
  antitoxin, intramuscular injections of, (1) 807
  antitoxin, intravenous injection, (86) 1703
  antitoxin, Schick's recommendation on proper dosage of, 2134—E
  bacilli, atoxic strains of, (49) 706
  bacilli, negative results of electrophoresis in eradicating, from tonsils, (170) 206
  Behring's inoculation, effectual, (65) 812
  Behring's vaccine and diphtheria toxin skin reaction in immunization against, (10) 887
  cardiac arrhythmia in, (4) 1426
  carriers, (82) 1063
  carriers, treatment of, (43) 509
  carriers, vaccine therapy for chronic, (108) 1698, (94) 1982
  cultures, period of incubation for, (9) 1420
  Döhle's inclusion bodies in scarlet fever, measles, tonsillitis and, (67) 357
  exposure and immunity to, 2063
  gums, in 2 infants, (109) 713
  heart in, clinical and pathological study of, (38) 1700
  immunization in, and treatment by toxin-antitoxin, *859
  intoxication, failure of circulation in, 37—E
  laryngeal, advantages of intubation of larynx over tracheotomy in, (33) 895
  laryngeal, deferred death after tracheotomy for, (21) 513
  laryngeal, intravenous antitoxin in, (38) 1696
  metastatic obstruction of esophagus by false membrane in fatal. (91) 2169
  paralysis following, (101) 1425
  polyneuritis following, cured by tonsillectomy, (97) 69
  polyneuritis following, with pains, ataxia and paralysis, *(60) 1238*
  prophylaxis of, (48) 1613
  recurrence, *fatal termination*, (100) 1697
  skin, of unusual types, *398
  spread of, by milk, (141) 2170
  toxin, glomerular and arterial lesion produced in rabbit's kidneys by, (42) 706
  treatment, *(34) 894*
  urine in nephritis of scarlet fever and, *(9) 1058*
  Vincent's angina and, (55) 1511
DIPHTHEROID organisms isolated from lymph-adenomatous structures of body, (20) 1324
DIPLOBACILLUS exanthematicus, urobilinuria and diazo reaction in typhus and, (45) 1238
DIPLOPIA and heterophoria, diagnosis of, *from portrait of Abraham Lincoln*, (164) 973
DISACCHARIDES, action of tissues on, *(75) 969*
DISEASE as disturbance of equilibrium, *1447*—ab
  borderland of, (3) 2164, (3) 2261
  energy requirement in, *827
  eradication of, and *medical profession*, 1926—ab
  food cause and cure of, (169) 813
  importation of, into this country at close of war, measures against, 1963
  in camp, common, (1) 1139
  internal, in *army*, (46) 1795
  organic, *symptoms* and physical signs of approaching, (51) 1137
  patient and, (5) 2310
  poverty and, **1720*
  prevention of, 193—ab
DISEASE, revocation of license of physicians obtaining fees on representing that incurable diseases can be cured, validity of statute providing for, 54—Ml
  susceptibility to, as atavism, 1399—ab
  transmission by pediculus capitis, (94) 1146
  treatment of, conservatism in, (69) 606
DISINFECTANTS, bacteriologic standardization of, (12) 350
  chemical and germicidal properties of antiseptics and, (98) 892
  chemical, tuberculocidal action of, (19) 1504
DISINFECTION: See also Sterilization
DISINFECTION, formaldehyd, *1025
  infectious diseases and, (85) 1607
  of books, 964
  of houses occupied by tubercular patients, (3) 609
  of schools, 2227—T
DISPENSARY abuse, (74) 1137
  itinerating, (6) 64
  or out-patient department, functions of, (53) 969
  surgical tuberculosis, advantages of, (221) 362
  teaching, problems of, (65) 2161
  tuberculosis state, (106) 1234
  work, growth and development, (114) 971
DISTRICT OF COLUMBIA April report, 51
  medical news, 490, 1121, 1205, 1400, 1770
DIURESIS test with *abnormally* [illegible] (39) 895
  [illegible] old, simulating [illegible]) 606
  [illegible] wall in, high-frequency current in, (39) 1231
  Meckel, disturbances from, (141) 72
  pulsion, (74) 68
  small intestine, other than *Meckel's, (45)* 66
  stomach, from peptic ulcer, (145) 206
  urinary bladder, *2015
DIVORCE and *insanity, (77) 2074*
  law, reform in, 44
  psychologic *aspects of relation of* accidents, crime and, to mental defects, *(87) 275*
DOAN'S Kidney Pills, 1686—P
DOGS, sanitary, services of in *present war, 2055*
  wanted *for recovering* wounded and sick in the field, 1490
DOHLE'S leukocytic inclusion bodies *in scarlet fever* and other diseases, investigation of, (20) 278, *(67) 357*
DOUCHES, vaginal, medicated, during pregnancy and parturition, (53) 1331
DOUGLAS and Haldane method for calculating dead space in *breathing*, (56) 428
DRAINAGE, abdomen, omentum in, (43) 1055
  apparatus, priority in discovery, *1667, 1871—C
  bladder, simple method, *(112)* 276
  continuous, of *ascites, (90) 1514*
  female pelvis and, (84) 510
  in acute empyema, *dependent* intercostal, (52) 2261
  in suprapubic prostatectomy, *1667
  of intra-ocular and intracranial fluids into venous system, (47) 1505
  of intra-ocular fluids, (47) 1505
  tube, damages for permitting wound to heal over, 844—Ml
  tube, rubber, in bladder, *[illegible]
  urinary bladder, self-retaining collapsible T-shaped catheter for, *1031
DREAMS, analysis and interpretation of, based on self-preservation motive, (6) [illegible]
  analysis and interpretation of, based on theory of psychoanalysis, (47) [illegible]
DRESSINGS and operations, surgical, at Johns Hopkins Hospital, (57) [illegible]
  cotton, need for economy with, (52) [illegible]
  economy in, (162) 2169
  ether, in gynecology, (53) 811
  extension, of tubular tricot and varnish, (87) [illegible]
  field, and infection, (85) 2079
  lint for, (81) [illegible], (44) 2165
DRESSINGS, pinewood sawdust as surgical, (9) 1793, (22) 2075
  sterilizer for, simple form of, (15) 2165
  supply of, (72) 2168
DRILL, electric, in bone surgery, (155) 277
DROPSY, congenital, (64) 2078
  of bile apparatus, (152) 438
DRUGGIST: See Pharmacist
DRUGLESS therapy in Pennsylvania, rules governing, 421
  therapy, petition for professorship for, 496
DRUGS, absorption of, studies on, *469
  action of, modified by combination, (128) 436
  action of, on isolated pulmonary artery, (76) 1425
  action of, on plants, (33) 2165
  action of, on uterus of guinea-pig and rat, (90) 970
  by-effects of, (38) 1612
  convulsant, *influence of lymph* hearts on action of, in cardiectomized frogs, (82) 1425
  eruption, *635
  eruptions, common, bearing *on* diagnosis, (27) 509
  exportation of hospital supplies and, prohibited in Austria, 1682
  imported, beware of wasting, (103) 1705
  imported, *in Sweden, 1683*
  imported, meeting shortage of, 692—E
  medical supplies and, exportation of, from Germany forbidden, 958
  medical supplies and, shortage of, in Austria, 958
  production in United States, 535—E
  purchase, preparation and distribution of medical supplies and, in hospital, (94) 275
  purchasing and dispensing of, by physicians, (44) 1055
  purchasing and dispensing of hospital supplies and, (97) 275
  scarcity of, in England, 1216
  source and supply of, 2135—ab
  supply and war, 555—E
  supply in England, 1857
  synthetic, England to manufacture, 957
  toxic, and diet, *136
  used in general and mental hospitals, *comparison of*, (26) 1021
  value of checking new applications of, by reference to previous experiences, 1300—E
  wanted from America, 1490
DRUNKENNESS: See also Alcoholism; Inebriety
DUCK as preventive against malaria and yellow fever, *1203, 1410—C
  habits of, render eggs more liable to infection than hens' eggs, (53) 895
DUCT, Botalli's, closing up after birth, (176) [illegible]
  Botalli's, in infant living [illegible] months, persisting [illegible] and, (57) [illegible]
DUCTLESS GLANDS, [illegible] from, [illegible] with, (7[illegible]) 435
  influence of secretion of, on protein metabolism, (65) [illegible]
  liver function as influenced by, (41) 1135
DUGUET, death of, 234, 415
DUKE'S plans thwarted by The Journal, 1304—E, 1312—P
DUMDUM and explosive bullets in war, (7) [illegible]
  bullet wounds, (83) 2079, (17) 2311
  bullets, re, 1042
DUODENUM and hour-glass stomach, (45) 509
  arteriomesenteric occlusion of, (29) 1611
  cancer of small intestine and, (5, 24) 1793
  cinematography of antrum pylori and, (2) 1883
  cinematography of stomach and, 1419—ab
  congenital, anomaly of, (18) 1428
  contents, direct examination of, in diagnosis of gall-bladder and pancreas affections, (4) 1604
  dilatation of, congenital, symptoms from, (138) 1525, (39) 1096
  feeding, (10) [illegible]

- DUODENUM, mobilization of, (77) 357
  - mucosa, extract of, physiologic and therapeutic action of, (60) 1987
  - obstruction of pylorus and, (110) 892
  - resection of, with papilla for cancer, (63) 1331
  - rupture, retroperitoneal, (90) 203
  - tube, (83) 357, (127) 971
  - tube, feeding by, (96) 203
  - tube, simplification of examination with, (97) 1705
  - ulcer, (102) 203, (110) 204, *1202, (62) 1701, (70) 1797
  - ulcer in infants, 5 cases, (7) 1978
  - ulcer, medical management of, (41) 1697
  - ulcer of pylorus and, closure of pylorus for, *1525
  - ulcer of stomach and, (27, 28) 967, 1786—ab
  - ulcer of stomach and, concomitant, diagnosis of, (108) 1705
  - ulcer of stomach and diagnosis, (29) 967, (71) 1703
  - ulcer of stomach and, diagnosis and treatment of, (89) 429, (56) 1987
  - ulcer of stomach and, difference in morphology of blood in chronic appendicitis and in, (9) 1604
  - ulcer of stomach and, end-results in, *1836
  - ulcer of stomach and, etiology of, (36) 1330
  - ulcer of stomach and, intestinal stasis and, (113) 1983
  - ulcer of stomach and, pylorus exclusion by suture for, (42) 612
  - ulcer of stomach and, roentgenoscopy of, (147) 276, (40) 1696
  - ulcer of stomach and, ruptured, (17) 2070
  - ulcer of stomach and, surgery of, 793, (11) 808, *1184, (120, 121) 1882
  - ulcer of stomach and, symptomatology and diagnosis, (42) 1697
  - ulcer of stomach and, treatment, (31) 1231
  - ulcer of stomach or, necessity of combating hypersecretion with, (51) 1511
  - ulcer, operative treatment, 65 cases, (52) 1060
  - ulcer, pathology and etiology of, (2) 1235
  - ulcer, perforated, (23) 809, (38) 1231
  - ulcer, roengenoscopy, (11) 704
  - ulcer stimulates stomach motor functioning, (82) 68
  - ulcer, technic for closing pylorus permanently with, (46) 976
  - urinary diastase test with ruptured, (13) 1609
- DURA, defects in, plastic operations to close, (144) 72
  - hemorrhage of traumatic origin and pachymeningitis hemorrhagica interna, (13) 2075
  - sarcoma of, from mastoid process, 2 cases, (26) 1420
  - spinal, tumor of, (75) 68
  - wounds of, in operation on mastoid process, treatment of, (86) 429
- DUST, (112) 1327, 1761—T
  - schoolroom disease and, prevention of, (58) 1137
- DWARF, paleolithic giants and, (48) 1231
  - growth from achondrodystrophy fetalis, (119) 2082
- DYSENTERY, (23) 1236, (14) 1329, (19) 1428, (15) 1508, (39, 43) 1794, (54) 2167
  - acute, (79) 891
  - amebic, (54) 509, (32) 889, (117) 1234
  - amebic, continuous propagation of, in animals, (35) 59
  - amebic, diagnosis and emetin treatment in, (54) 356
  - amebic, emetin in, (101) 275, (3) 708, (48) 2160
  - amebic, experimental production of, by direct inoculation into cecum, (53) 2161
  - amebic, in Canal Zone, (2) 708
  - amebic, in children, *1806, 2052
  - amebic, in Malta, (20) 1793
  - amebic, propagation of, among animals, (31) 1789
  - amebic, salvarsan in, (132) 1983
  - amebic, treatment of, (7) 1604
  - among troops in Vera Cruz, 256
  - bacillary, clinical picture of, in infants and children, (195) 362
  - bacillary, treatment, (138) 1698
  - bacillus, nucleoproteids of, (115) 2092
  - bolus alba in diarrhea, cholera and, (67) 1796
  - carriers in Sarawak, (13) 609
  - differentiation of, (63) 1613
  - emetin in, (66) 1331
  - emetin in, in children, (27) 200
  - etiology and treatment, (81) 1615
  - jail, nature of, (29) 709
  - vaccination against typhoid, cholera and, (67) 2079
  - prophylaxis and treatment of, in army, (72) 1511
- DYSERGIA, cerebellar, from malarial thrombosis, (91) 1507
- DYSMENORRHEA, dilatation of uterus cervix for sterility and, (100) 1889
  - essential, (119) 892
  - nasal treatment of, 1133—ab, (67) 1326
- DYSPAREUNIA, surgical treatment, (10) 199
- DYSPEPSIA, liver and intestine trouble due to chronic, (98) 814
  - with chronic alcoholism, (197) 286
- DYSPITUITARISM, (9) 1235
- DYSPNEA and acidosis in kidney and heart disease, (43) 968
- DYSTOCIA, contraction ring cause of, (23) 1884
- DYSTROPHIA adiposogenitalis of Froehlich, *148
  - pseudo-hypertrophic muscular, 2 cases, (11) 894

DEATHS

Acton, Young Jonathan, 1127
Adams, James Forster Alleyne, 498
Adams, John Lanson, 1218
Ahern, Michael Joseph, 417
Ainsworth, Herman Reeve, 1869
Albers, John G., 1407
Albertson, Charles S., 2303
Alderman, Ashael H., 1219
Alford, Jeptha J., 2245
Alger, Clarence K., 961
Allen, Ethan G., 1969
Alston, Allen J., 2147
Amick, Wallace B., 794
Amis, John C., 1592
Amos, William McD., 417
Anderson, John T., 2303
Andrews, A. G., 1969
Annowski, William H., 1407
Apple, Samuel Stem, 1968
Appleton, Walter Frederick, 698
Armour, James Fry, 1493
Armstead, John B., 416
Armstrong, Addison Alexander, 1045
Arnold, Elmore Ferdinand, 881
Augur, Ralph H., 2245
Babbitt, Warren Morris, 2244
Babcock, Francis Lester, 2244
Babin, Wallace J., 1126
Bacon, Charles H., 881
Bacon, Charles J., 1126
Bailey, Richard A., 1407
Baird, Adams Quincy, 881
Baker, Walter Samuel, 1777
Baker, William Henry, 2147
Baldinger, William Henry, 2245
Ball, James, 2302
Bangs, Lemuel Bolton, 1311
Barker, John C., 1219
Barker, R. L., 179
Barnard, William Edward, 1126
Barnes, James A., 336
Barnes, J. Franklin, 1869
Barney, Charles S., 179
Baron, Henry S., 1593
Barr, John H., 1126
Barrett, W. L., 1685
Barstow, Charles Franklin, 1127
Barth, H., 1866
Barton, Jadediah Marcus, 1593
Barwick, George Irvin, 594
Bates, C. H., 2303
Baudy, Jerome Keating, 1493
Baylies, Andrew, 499
Beall, Elias J., 1685
Beals, Frederick C., 960
Beatty, Joseph Edward, 1592
Beaumont, Godfrey, 1968
Beckett, John Wesley, 1777
Beeman, Milton Ira, 336
Beeman, Sherman M., 595
Belden, James Webster, 1968
Bell, Daniel F., 1126
Bell, James Bachelder, 1592
Bell, James Ewell, 179
Bell, J. H., 1407
Belt, Harry David, 1593
Benedict, Byron Irvin, 1126
Bennett, Herbert E., 1593
Bennitt, Francis M., 594
Benson, William T., 595
Berberich, Herman, 595
Bergman, Solomon Adams, 1969
Berlin, Frederick Ferdinand Rudolph, 47
Bettis, J. T., 2245
Betts, Charles, 880
Bertheim, A., 1965
Binns, John E., 179
Bird, Samuel R., 1045
Bishop, Hal F., 1407
Bixby, Jesse Parker, 179
Bixler, Samuel Henry Clay, 48
Bizzell, Francis A., 47
Blackford, Joseph R., 2147
Blair, William, 2057
Blick, Joseph Arrington, 2147
Blount, Roland F., 1776
Bobo, Joel E., 1127
Bogert, Sylvester Straut, 1126
Bogue, Almas P., 595
Bolgiano, Walton, 697
Bollinger, William Dee, 417
Bonebrake, Henry X., 2146
Bonnell, William Wayland, 179
Bookins, Andrew Benjamin, 2057
Booth, Charles E., 595
Booth, William H., 179
Borden, Matthew Stirling, 1127
Boretti, Albert Ferdinand, 416
Botkin, Thomas W., 2147
Bowen, John T., 499
Bowles, George Richard, 179
Bowman, William, 1776
Boyd, George Washington, 2057
Boyd, Robert, 1045
Boyson, Thomas J., 1777
Bradford, Robert Harris, 2302
Bradley, Ely, 1869
Brady, C. Milo, 1968
Brallier, James Porter, 1776
Braman, Charles Bigelow, 336
Bramblitt, William H., 1776
Brandt, Albert E., 1219
Brewster, James Bartlett, 1869
Brickey, William N., 1219
Brierly, John B., 2245
Briggs, Evelyn, 257
Briggs, Robert, 1407
Brinkman, Albert, 2302
Bronaugh, John W., 1045
Brookins, Andrew B., 1593
Brosius, Milton Isaac, 336
Brown, John Mason, 417
Brown, John Wing, 417
Brown, Marcus E., 48
Brown, Michael Joseph, 257
Brown, Rush Parmenter, 48
Brown, Simon Preston, 1968
Brownell, Elias Lawrence, 2303
Bruen, Elijah Leonard, 1593
Brundage, Alfred Royce, 595
Brundige, Samuel P., 2147
Brunsen, August B., 1219
Bryan, Henry Northam, 1869
Bryant, James William, 2147
Buffum, Charles Thomas, 595
Bullock, George Dexter, 2302
Burgess, Maynard Gooding, 880
Burgess, Mosheim S., 2244
Burke, George Herbert, 2302
Burkett, John Hess, 1219
Burns, Robert, 1493
Burris, John Eaton, 1219
Burton, Shadrach, 417
Butler, Jerome E., 698
Butterworth, Charles M., 47
Buzzard, Samuel, 1407
Byrne, Joseph Henry, 1045
Byrns, William Francis, 1311
Calfee, Welcome Harrison, 2245
Callantine, Blythe Jackson, 1869
Cameron, Evan, 2147
Camp, James Leeworthy, 2147
Camp, Marshall, 961
Campbell, John F., 1968
Campbell, John F., 47
Campbell, Joseph Lowman, 2147
Campbell, Osman Beverly, 1869
Campbell, Thomas Arthur, 1685
Campbell, Warren M., 2245
Capener, William H., 2302
Cardozo, Jacob Lopes, 1968
Carico, John W., 1685
Carleton, Bukk G., 1777
Carnes, Harry H., 48
Carolin, William Terrence, 2244
Carpenter, William Henry, 594
Carr, William Henry, 697
Carson, Louis O., 1407
Carson, Matthew Rippey, 1493
Cash, Nathan, 794
Cassidy, John Joseph, 1777
Castellanos, John J., 1776
Celli, Angelo, 2053
Chaffee, Frederick F., 881
Chamberlain, George Washington, 1969
Charette, Joseph Armand, 1685
Chase, Hiram Luce, 48
Cherry, Robert K., 1969
Chesley, Jesse Portman, 1593
Childe, Edward P., 794
Chittock, Gordon, 257
Christie, George Henry, 499
Church, Robert R., 193
Claggett, Samuel, 336
Clark, Caleb Wakefield, 417
Clark, Edgar Augustus, 48
Clark, Edgar Willard, 499
Clark, John Franklin, 1777
Clark, L. W., 48
Clarke, Albert S., 178
Clausen, Bernard, 1407
Cleary, Brig. Gen. Porter J. A., U. S. A., 2057
Cloyd, Stephen H., 1045
Coble, Daniel W., 1406
Cocke, James Henry, 2245
Coffee, Mark W., 880
Coffman, Lafayette, 698
Colburn, John R., 1776
Colby, Benjamin Dorr, 881
Coleridge, James Bruce, 1045
Colvin, Minyard T., 1685
Compton, Walter G., 1685
Conner, Milledge Marcellus, 1969
Cook, Albert Merritt, 880
Cook, Alonzo G., 1593
Cooke, Baldwin Gardiner, 2302
Coolidge, Charles Mariner, 1407
Coombs, Samuel William, 2245
Coonan, John M., 47
Coonley, Raymond Benjamin, 1407
Cordes, A. E., 1042
Corr, Lucinda Hall, 1127
Corson, Linwood Shanger, 1592
Cortijo, Dr., 2144
Corwin, Elizabeth, 1127
Courtright, Frank E., 498
Covert, Milton, 2147
Cox, James P., 794
Craig, Horatio, 1493
Cranz, Daniel E., 47
Crepin, Henry E., 1126
Creveling, Philip G., 2147
Crider, J. Jackson, 1777
Crow, Charles R., 2245
Cuddahy, Dennis, 1407
Cunningham, Charley Marion, 881
Cunningham, Frank Martin, 178
Currier, A. E., 1407
Curry, William A., 1126
Cushing, Eugene Bonaparte, 1969
Cuthbert, William L., 179
Dally, Harvey M., 2303
Damon, Elwin H., 1045
Dann, Archibald, 1219
Danner, L. G., 1407
Darling, Edwin, 178
Davidson, J. C., 498
Davie, Frank C., 257
Davies, William Henry, 1593
Davis, Amos, 2057
Davis, Ben, 2057
Davis, Frederick Leander, 2057
Davis, Hugh Wythe, 257
Davis, John Senter, 47
Davis, Pompey, 1493
Davis, Sheldon Fitch, 417
Davis, Simeon O., 1126
Davison, Archibald Thompson, 1311
Day, J. Asbury, 1126
Deemer, Sanford Junius, 48
Delaney, William T., 499
Delcher, Edward W., Jr., 417
De Long, Ward Beecher, 1968
De Mendoza, Arthur Hurtado, 179
Denison, James Sanford, 1776
Denkewalter, Frederick William, 336
Derby, Haskett, 880
Devine, John Richard, 178
Dick, J. H., 698
Dickens, Constantine Lomax, 1407
Diebitsch, J., 1866
Dillingham, William Edward, 881
Dillon, Phillip F., 697
Dolan, William Grange, 2303
Dolbeck, George Nelson, 961
Dorman, Albert Barnes, 2244
Dorsey, Joseph Foster, 1869
Doty, Edward Tyler, 1218
Dougherty, Sherbourne William, 2146
Downey, William Henry, 1869
Downs, Frederick Bradley, 1126
Drake, Moris, 2302
Dudley, William Lofland, 1045
Duguet, Nicholas Jean-Baptiste, 254, 415
Duncan, Stanley Forbes, 1407
Dunning, Isaac R., 2057
Dustin, John Francis, 1592
Duthie, Lawson A., 1311
Dyas, Webster M., 417
Eanes, Robert W., 1407
Earll, Robert W., 1777
East, Collier D., 1592
Eaton, Charles M., 2147
Eddmon, Adam, 1407
Edgerton, Howard King, 257
Egginton, Leo O., 1869
Eidson, Merrill L., 336
Eife, Arthur Francis, 417
Eldred, William Henry, 697

Ellis, Dean Samuel, 336
Embley, William Thomas, 257
Emmerich, R., 2053
Emmett, James Orrin, 417
Engelsted, S., 1866
Englerth, Jasper T., 960
Eno, Henry Clay, 416
Ericson, Bror Otto, 698
Erstling, Maude L. Dunn, 1311
Ewell, Sey W., 336
Fabian, Jacob Jacques, 498
Fairall, Herbert Snowden, 48
Farish, Henry Greggs, 1045
Farr, Edwin J., 499
Farr, William W., 499
Farrish, Amos H., 2147
Fasbender, H., 496
Feathers, Charles, 499
Fergus, James W., 1593
Ferguson, H. C., 1592
Fife, Samuel Robinson, 1126.
Finch, Albert M., 1311
Finch, Elmer Ellsworth, 698
Finical, Franklin Fremont, 1776
Fischer, Washington Emil, 1311
Fisher, Theodore Willis, 2057
FitzHugh, Thaddeus, 2245
Fitzporter, John L., 1869
Flack, William D., 1045
Fleming, Daniel William, 48
Fleming, John C., 1218
Fletnitz, William Theodore, 1968
Flint, Almena Jane Baker, 1045
Flint, Edward Horton, 1969
Foley,, Robert Emmett, 2147
Ford, Cornelius T., 1126
Forster, William Andrew, 794
Forsythe, Andrew A., 1593
Foster, Charles Heselton, 698
Foster, Gard Wilmarth, 2302
Foulke, Richard C., 47
Fox, Thomas G., 48
Fraser, John M., 2302
Freeman, Eugene Nesbit, 1219
Freeman, Richard Thomas, 1126
French, George Eldon, U. S. R. S., 178
French, John S., 2057
Frisbie, William, 1407
Froelich, W. Rudolph, 1969
Fuller, James S., 1592
Funck, Charles Julius, 178
Gable, William Henry Harrison, 881
Gaboury, William L., 1045
Gaines, James W., 2147
Gallaher, John William, 178
Gallegher, Barnard H., 336
Galloway, Clark M., 2147
Gamble, John Robinson, 1777
Garcelon, Franklin, 257
Garland, Charles P., 1407
Garofalo, A., 494
Gartner, Charles, 498
Garvey, James B., 960
Gaston, Erastus Monteith, 48
Gates, Henry Augustus, 179
Gaviller, Edwin A., 1777
Gavin, George Edward, 2057
Gerlier, F., 1865
Geyer, James B., 178
Gibb, Joseph Scribner, 1869
Gibson, Charles Reuel, 1493
Gibson, Robert Francis, 961
Gifford, Edward F., 1869
Gillis, Stephen H., 2245
Gilson, Arthur Scott, 1685
Gladding, Charles Francis, 1311
Gladman, George James, 1407
Glass, Matthew James, 961
Gleitsman, Joseph William, 257
Godfrey, Luman M., 179
Goodell, John, 1406
Gottschalk, R., 1965
Goulnlock, William C., 1045
Gould, John Ernest, 1869
Graham, George G., 794
Grant, John Hudson, 1126
Grauel, Henry W., 336
Graves, Newton, 2245
Greeley, Henry Parkhurst, 257
Green, Walter D., 1869
Green, Wesley J., 2302
Greer, John Ambert, 179
Gregg, Andrew Cursena, 2057
Griffith, Arrillis Irving, 1219
Griffith, John Henry, 595
Griffith, Samuel D., 1045
Grim, William Wesley, 499
Grimes, John Henry, 2057
Grimes, John Walter, 2244
Grimes, Samuel Butler, 1777
Grimes, Warren Vernon, 2057
Grindle, John W., 1127
Grinnell, Mary Vail, 499
Grosvenor, Lemuel Conant, 417
Grover, Arthur Watson, 1045
Grunfeld, L., 1965
Guilbeau, Honore P., 1593
Gutierrez, 1042
Guyott, Ezra John, 595
Gyllenhammar, Frithiof N. H., 1493
Haines, Abram L., 47
Hall, Crowell Clarinton, 1777
Hall, Willard A., 2303
Hall, William H., 1969
Hallam, John C., 794
Halpin, John Francis, 1126
Halstead, James Muir, 2245
Hamilton, John Albin, 698
Hamilton, John A., 1593
Hamilton, Theodore Erskine, 498
Hamilton, William R., 1592
Hammer, Arthur Wesley, 960
Hammonds, John Wilson, 1968
Handley, Vaudios Hedwood, 1685
Hanger, Arthur C., 1685
Hanscomb, Walter V., 2245
Harding, Edward K., 336
Haritz, F., 1965
Harmison, David C., 1777
Harris, Alphonso, 1685
Harris, Jephtha Vining, 2302
Harrison, Charles William, 1406
Harrison, Gwynne Page, 881
Harrod, John, 2302
Hart, Ira F., 1869
Hartwell, Harold Willis, 2147
Hartwig, Max H., 1593
Harvey, Benjamin Franklin, 179
Harvey, Charles Eugene, 2147
Hascall, Henry Jefferson, 1969
Haskell, Henry Marsh, 698
Hassett, James Jerome, 1869
Hatfield, Milton I., 2303
Hawes, Walker Aylett, 417
Hawk, William W., 1407
Haynes, Edward Everett, 498
Hazard, Alexander, 1045
Hazelett, Isaac W., 697
Hazlett, Isaac C., 336
Heenan, Thomas E., 594
Hegar, Alfred, 1042, 1044
Heglar, Arthur Lee, 1407
Heidel, Gustave A., 595
Heidt, William T., 2302
Heilbronner, K., 1866
Helfferich, Emil V., 2057
Heller, Joseph Mosher, 1407
Hemenway, Frank A., 1593
Henderson, Samuel James, 179
Henderson, William E., 1593
Hendricks, Ernest A., 499
Hennessy, John V., 499
Hermann, Ludimar, 45
Hermann, Dr., 1866
Heron, Alexander Martin, 1968
Herring, Aaron, 417
Hewins, William Augustine, 2245
Hickey, Eugene J., 2057
Hicks, John Fullerton, 1777
Hightower, Thomas W., 2147
Hildebrand, Guy H., 1311
Hill, Alfred Henry Scott, 48
Hilliers, Joseph Warren, 417
Hinkle, James Reid, 1311
Hinmers, George Francis, 2057
Hobbs, Frank Henry, 2057
Hodge, Thomas Carman, 594
Hodges, Edward, N. G., N. Y., 1776
Hoffman, Samuel J., 1969
Hogeboom, James L., 179
Hogg, John W., 1219
Hogsett, J. W., 2245
Hogue, Isaac R., 2303
Holbrook, Charles Allen, 594
Holland, Madison Monroe, 1685
Holmes, Charles J., 1127
Holmes, Louise Dodson, 1593
Holmes, Oscar Lamar, 1407
Home, Sir Anthony Dickson, 1042
Hoover, Cyrus Ernest, 881
Horgan, John Augustus, 1968
Houg, Harold T., 417
Houghton, Hezekiah Seymour, 1127
Howard, Bailey P., 257
Howard, Delphius W., 2245
Howard, Thomas M., 2147
Howard, William Edward, 416
Howe, James Sullivan, 2244
Howell, William S., 48
Howes, Pitts Edwin, 1407
Hubbard, Dwight Gustavus, 1493
Hubel, John T., 2245
Huber, Harry J., 1407
Hudson, George W., 1127
Hudson, Thomas McUrgan, 48
Hulin, Oscar Weston, 1493
Hummel, John Lawrence, 336
Humphrey, Aaron G., 2057
Humston, O. M., 2147
Huning, Fred Henry, 1219
Hunt, James George, 257
Hunt, Stephen, 2057
Hunter, Alexander, 1045
Hunter, Thomas Osborne, 2302
Hunter, Thomas Smith, 47
Huntington, Samuel David, 1685
Hurlburt, George W., 336
Hussey, Stephen Henry, 1219
Hutchins, Eugene A., 1969
Hutchison, Thomas L., 498
Hyatt, David T., 1592
Hymer, Glenn Orville, 697
Infield, Clifton N., 1311
Irwin, Robert J. A., 1127
Jackson, Andrew J., 2147
James, George W. C., 48
Jenkins, George F., 1045
Jenkins, Harry Madison, 1685
Jenkins, Luther Walker, 1493
Jennings, Clement A., 417
Johns, William Taylor, 2302
Johnson, Clifford P., 498
Johnson, Frederick Lee, 179
Johnson, J. McBride, 2244
Johnson, John W., 257
Johnson, Robert Brown, 1219
Johnson, William H., 1311
Johnson, William Wesley, 2245
Johnston, Charles Moman, 881
Johnston, Christopher, 595
Johnston, Crawford, 2245
Jones, Albert Gallatin, 1869
Jones, Frank, 698
Jones, Harry Murray, 1593
Jones, John W., 1777
Jones, Thomas Olin, 2245
Jones, William S., 417
Joselyn, Otto Chester, 179
Joyce, Martin Thaddeus, 1311
Jungmann, A., 1965
Justin, Helen DeWitt, 1045
Kaufman, Carl, 1593
Kean, Louisa J. Darnstaedt, 48
Keator, Thomas Oliver, 499
Keegan, Enoch Wood, 1045
Keeney, Burtus M., 1311
Keeney, James Ward, 1968
Kehrer, 177
Kelser, Phaon D., 697
Kelley, Francis Hart, 48
Kelley, John Henry, 1685
Kelley, Joseph Henry, 2057
Kennedy, Stephen Dandridge, 1126
Kerr, John N., 1968
Kessler, William H., 178
Kimball, Levi Houghton, 1777
Kimbrough, Frank Vincent, 2057
King, James Kossuth, 1311
Kingsbury, Daniel, 2147
Kinney, Frederick Johnson, 48
Kinsey, C. E., 417
Kirchheim, L., 1965
Knight, Martin Luther, 1968
Knott, James J., 417
Knowlton, Augustus Barton, 416
Kohler, Frederick W., 2245
Kosel, W., 1866
Krake, Leigh Seward, 1407
Kremers, Henry, 417
Kronecker, 45
Kuhlman, Charles G., 1777
Kyle, Edmond Henry, 48
Laas, Charles H., 698
Lafayette, Thomas, 1968
Faferriere, Amable Aurez, 698
Faforest, George L., 179
Lagan, Hugh, 1593
Lake, Charles B., 48
Lamb, Dryden Hemingway, 697
Landrum, Walter L., 499
Lane, John Harry, 1219
Langan, Daniel, 47
Larkin, Clement Chandler, 1685
Lasher, George W., 2302
Layfield, John W., 1593
Leake, Ruth Bryant, 961
Leavitt, Dudley, 1045
Lee, Charles B., 499
Lee, George Harvey, 336
Lee, James Alison, 1969
Lee, John Andrew, 336
Lenderink, Bernhard V., 1311
L'Engle, John Claudius, 1493
Lentz, Leotos, 1126
Leslie, Archibald C., 1869
Leslie, James, 2147
Lester, Pliny Penn, 1491
Lester, Simon P., 1593
Leverty, Alexander Shirley, 1045
Lewis, Charles Henry, 1493
Lewis, John Merritt, 417
Lewis, Leon Gay, 1592
Lewis, Malcolm Duane, 1869
Libbey, Erving Asa, 2147
Lindeblad, Carl G., 595
Lindsey, Hiram W., 1493
Line, Josephine Alice, 1593
Loar, Lerl, 1127
Lock, John August, 2303
Loeb, O., 1866
Long, Louis C., 2245
Long, Oscar B., 1126
Longstreth, Morris, 1311
Lopez, Joseph H., 1407
Louis, John Jacob, 1127
Low, Andrew S., 2147
Lowndale, Thomas N., 48
Lucas, John N., 48
Lucker, Horatio Ray, 1407
Lumsden, William James, 1592
Lyle, Alta E., 881
Lynde, George Stanley, 1869
Lyon, Jerome B., 2057
Maaser, Carl Edward, 2147
MacFarlane, Carrington, 880
Mackley, John Franklin, 1407
Macleay, Kenneth Laughlin, 1685
Maddox, Shelvey, 2303
Magee, George Whitten, 336
Magill, Arthur C., 1592
Magnus, W., 1866
Magruder, William Edward, 417
Mahan, Oliver Perry, 48
Maloy, George Edward, 2302
Mangan, Patrick H., 961
Mangum, William Wightman, 2147
Markland, William Perry, 1407
Marks, Solon, 1311
Markwell, Edward Wood, 1407
Marshall, Robert P., 880
Martin, Charles Buchanan, 1968
Martin, James A., 47
Marx, Simon, 47
Mason, Wilton Marcellus, 1311
Massicotte, Louis Charles Philippe, 1685
Mathews, Allan Aleyne, 2303
Matthey, Carl, 336
Mayer, F., 1965
McCabe, Walter Frederick, 1218
McClure, Sanford B., 595
McConnell, Robert Nelson, 47
McConnell, William H., 961
McCrea, Agnes Benford, 499
McCrea, Henry, 498
McCulloh, William Watson, 595
McCullough, Henry Reid, 2303
McCully, Alexander, 2147
McCutchan, John Hooker, 1968
McCutchan, John N., 1592
McDonald, Alexander Donaldson, 1968
MacDonald, Henry J., 498
McEachern, D. C., 257
McFaden, John Duke, 499
McGarry, Michael Richard, 2245
McGregor, Alexander B., 498
McIntosh, James C., 2147
McKechnie, Josiah Brodbury, 1127
McKee, Henry T., 48
McKown, Thomas B., 1493
McLanahan, Johnston, 2302
McLean, Abner, 1593
McMurdo, William Wilford, 698
McMurtry, Charles Wood, 2146
McMurtry, Thomas Arthur, 499
McNeilly, Robert, 2245
McNulty, Frederick Joseph, 1776
McShane, Bernard E., 1218
Means, Victor Clay Barringer, U. S. N., 697
Melcher, William Palmer, 2244
Mellard, Joseph P., 1968
Mellen, Samuel Fairbank, 1311
Mercer, Alfred, 697
Meyer-Betz, F., 1965
Middleton, Caleb Scattergood, 178
Mierley, William Monroe, 1311
Millen, Sarah C. Hussey, 2245
Miller, David Philip, 498
Miller, Franklin Pierce, 1776
Miller, Henry C., 1969
Miller, Robert T., 336
Miller, Wilmot Frederick, 880
Milmoe, Julia Agnes, 1407
Minor, R. Blake, Jr., 2147
Minot, Charles Sedgwick, 1593
Mitchell, Frederick Bradford, 881
Mitchell, George, 2303
Mitchell, John Joseph, 595
Mitchell, Taylor S., 257
Moddy, Benjamin, 416
Mohn, Calvin George, 48
Mohr, Herman B., 1407
Money, James W., 1593
Monroe, Lee E., 961
Montgomery, Americus [illegible], 1127
Montgomery, G. S., 1127
Montgomery, J. W., 417
Montgomery, [illegible] Horace, 794
Mooney, Philip, 1493
Moore, Isaac, 2245
Moore, Samuel H., 48
Moore, Thomas Henry, 2303
Moore, Thomas Warren, 961
Moore, William Robert, 2302
[illegible], Charles H., 2057
Morgan, Alonzo William, 2147
Morgan, George S., 417
Morgan, James Hamilton, 178
Morgan, John W., 2303
Morgan, Sidney, 2303
[illegible], 1865
Morris, Alexander L., 417
Morris, Charles S., 2147
Morris, Claudius H., 1593
Morris, John W., 1592
Morris, Nathaniel G., 1592
Morrison, Napoleon B., 336
Morton, David Knight, 1127
Moseley, William B., 178
Mothersbough, Henry [illegible]
Moxon, Thomas N.

Moye, Elbert A., Jr., 499
Moyer, Daville J., 1969
Mumford, James Gregory, 1493
Mund, B., 1965
Munro, Sarah R., 1869
Murdoch, James Neal, 1311
Murphy, John H., 961
Murphy, Thomas Joseph, 961
Murphy, Veda C. Chipperfield, 1592
Murray, George O., 178
Nagle, Thomas S., 1126
Neff, Daniel D., 1776
Neil, James, 1593
Nelson, James Edward, 498
Nelson, Martin A., 48
Nelson, Stella Blanche Nicholas-Jones, 257
Newbill, Christopher S., 1592
Newell, Amos Jesse, 1869
Newlin, William L., 48
Newman, Frank Richard, 179
Newman, George W., 48
Newmayer, Harry, 1493
Neyman, Edgar H., 47
Nicholson, Samuel Alexander, 961
Niles, John Whiting, 1593
Nixon, Sir Christopher John, 494
Nolan, John T., 1219
Norton, Evan, 498
Norton, Robert, 48
Nye, William Freeman, 1045
O'Brien, Owen St. Clair, 1126
O'Byrne, William Joseph, 498
O'Callaghan, Dennie Francis, 698
O'Connell, Matthew Joseph, 697
O'Keefe, John Andrew, 1218
O'Leary, Daniel Vincent, 1406
O'Malley, Alexander Peter, 2303
Oliver, Andrew Sprague, 1968
Oliver, Hilary F., 595
Opie, Thomas, 1493
O'Rourke, Michael Francis, 498
Otwell, Loren S. Barton, 2245
Overhulse, Cassius M., 1127
Owings, Thomas B., 1045
Page, Robert P., 594
Palmer, Charles T., 178
Palmer, Marvin Reed, 178
Palmer, Thomas Dade, 257
Pappa, Louis C., 1407
Paradies, 1866
Parke, Floyd Benton, 1776
Parker, Edwin S., 48
Parker, Frederick, 1045
Parker, Phillip E., 1777
Parkison, John A., 961
Parks, Willis B., 2245
Parmelee, Myron H., 1407
Patterson, Lyndsey Oliver, 48
Pawlik, Karel, 1681
Payne, George Harkness, 1407
Payne, Josiah T., 1592
Peabody, George Livingston, 1369
Peale, Albert Charles, 2244
Peck, Shannon P., 1311
Pemberton, Henry H., 1968
Perkins, Alfred J., 1593
Perkins, A. N., 880
Person, William H., 961
Persons, James Turner, 595
Pettit, Stephen Clarence, 2245
Phares, Omer P., 417
Phillips, John L., 1593
Phillips, William French, 1126
Pilling, Henry H., 48
Piotrowski, Stanley Michael, 1776
Pitts, Rufus, 417
Plunkett, Ira Zeno, 961
Pockley, Captain Brian, 1966
Poe, Lafayette J., 1593
Pomeroy, William Henry, 47
Post, Martin Hayward, 1045
Poulin, Louis Seraphin, 2303
Pounds, J. M., 2147
Powell, Charles Bertram, 2245
Powers, Joseph Lewis, 1968
Pratt, Oscar S., 1493
Priest, Wilson R., 1968
Proctor, Carroll Everett, 417
Pursley, Sam C., 1311
Pynchon, Edwin, 880
Pyne, Albert Roberts, 595
Quandt, Edmund, 336
Quimby, Sumner Ferdinand, 336
Race, Charles T., 960
Ragan, Gillum Taylor, 499
Raizon, James, 595
Ralston, Samuel Hodgens, 417
Ralston, William G., 794
Ramsey, James Harper, 2302
Rand, Hannibal W., 2245
Ransom, William C., 1407
Raub, Michael W., 697
Rawlins, Samuel T., 1219
Ray, John Clossom, 2303
Read, Frederick B., 1493
Reclus, Paul, 494, 592
Redd, Charles S. Rudolph, 1592
Redding, John H., 417
Redlich, Henry, 960
Reed, Charles Henry, 2303
Reeder, Daniel J., 1869
Reefy, Solomon L., 698
Regar, Horace K., 1593
Reiley, Edward Anderson, 48
Reilley, James H., 257
Reith, John Winfield, 2303
Rencher, Eugene Hinton, 1969
Renwick, James Weir, 1869
Reymond, Emile, 1868
Reynolds, George Brown, 1493
Rice, Alger William, 595
Richards, Joseph Smith, 1776
Richardson, William F., 698
Richmond, William B., 48
Richmond, William Tatum, 2244
Richy, Henry Adolphe, 498
Ridout, William Govans, 257
Rinehart, William T., 257
Riordan, Bruce Livingston, 1685
Rippard, James C., 417
Robb, George W., 1219
Roberts, Jason, 2147
Roberts, John Lake, 880
Robertson, Jefferson Davis, 1493
Robertson, Joseph F., 880
Robertson, William Henry, 2057
Robinson, Lucien Bowyer, 47
Rogers, James Ball, 595
Rood, Arthur Burrows, 1126
Rose, Daniel Campbell, 881
Rose, E., 45
Ross, George Ivison, 1407
Ross, William Spear, 47
Rowland, Oliver J., 961
Rowland, Elbert, 1406
Rowley, Ransom F., 881
Ruczka, X., 1965
Ruddick, Lindley, 2057
Rudiell, Charles C. L., 1407
Russell, John Irving, 594
Russell, Joseph William, 595
Rutherford, John Robinson, 1407
Rye, Robert Lee, 2303
Sadler, Robert M., 2057
Safely, Grant, 961
Saltzgaber, William Rice, 1406
Sanders, William Samuel, 1311
Sanderson, James Henry, 1045
Sargeant, Arthur Parker, 594
Sargent, Charles Samuel, 1969
Sauberzweig, 1866
Sawyers, John Lazelle, 794
Saxl, Ernest, 1218
Scales, Samuel Webb, 2244
Schall, James Garvin, 47
Scholl, George Barr, 336
Schooler, Thomas Madison, 1685
Schott, Ira John, 2303
Schultz, H., 1866
Schwacke, August H., 257
Schwendener, John, 1126
Scott, Lee Osborne, 595
Seabrook, Clarence Cullen, 498
Secord, Levi, 48
Segerlund, Charles, 498
Seifert, George W., 336
Seitz, Frederick, 2245
Selinger, A., 1965
Seltzer, Cyrus Jay, 1776
Senkler, William Ivan, 1869
Sensabaugh, J. H., 2147
Senton, Benjamin Clarence, 1127
Seymour, James R., 2303
Sharp, Robert W., 2303
Sharp, Wesley Harris, 794
Shaw, Calvin, 1685
Shaw, John McMillan, 1685
Sheedy, Daniel Michael, 1776
Sheets, Levi D., 1045
Shelburn, Cyrus Cue Davis, 1777
Sheldon, Andrew C., 881
Shephard, Harold Middleton, 2303
Sheppard, J. M., 2245
Sherman, Paul, 178
Shipp, Edward Mansfield, U.S.N., 47
Shively, Marshall T., 2245
Shively, Samuel S., 1493
Shoemaker, James Singleton, 1593
Short, James L., 1685
Shrady, John, 1968
Shreve, Charles W., 2245
Shurtleff, James Frederick, 2303
Simcoe, Charles Bailey, 2245
Singer, Solomon, 2303
Singleton, John Milton, 499
Small, Abram L., 1593
Smick, Cassius Marcellus, 1593
Smith, David Thomas, 1493
Smith, Edgar B., 794
Smith, Eugene Alfred, 794
Smith, Harvey F., 48
Smith, Isaac N., 2147
Smith, Jennie E., 961
Smith, John C., 2057
Smith, Richard Lee, 1592
Smith, Thomas J., 698
Smith, Wilber Gray, 1311
Smith, William H., 2245
Smyth, Samuel H., 2057
Snyder, Alvin, 881
Snyder, Elmer Dallus, 1247
Soule, George C., 179
Southworth, Albert, 698
Spalding, Leonard H., 960
Spaulding, Thomas Benton, 1968
Stacy, Sumner A., 2302
Stanfield, William S., 498
Stanley, Archelaus A., 48
Steere, Harold Haines, 257
Stephenson, Wilfred V., 1968
Stern, L., 1965
Stevens, Atherton B., 417
Stewart, Darwin Adelbert, 2244
Stewart, Jeremiah Clark, 178
Stewart, John W., 48
Stillwell, Walter C., 1968
Stilwell, Cleveland Stewart, 698
Stone, Thomas Walker, 1968
Stone, William Garrett, 1869
Stotelmeyer, Charles Irving, 2057
Stout, Henry R., 1592
Stratford, Henry Knox, 498
Strawbridge, George, 178
Sturman, Elden Cromwell, 2303
Sutphen, Joseph S., 1045
Sutphin, P. C., 417
Swayze, George Banghart Henry, 960
Swentzel, J. P., 1593
Taft, Edward Harvey, 1969
Talkington, David L., 417
Tanguay, Joseph Remi, 595
Tate, Francis M., 1126
Taylor, David Lewis, 1593
Taylor, John Hale, 1311
Taylor, Warren H., 1776
Teigen, Knud Martin, 417
Thieman, John Henry, Jr., 336
Thomas, Ebenezer C., 257
Thomas, Edward, 961
Thompson, Lorenzo William, 1969
Thompson, Merritt W., 1126
Thoms, Frank Melvin, 1493
Thorpe, Alonzo V., 257
Thoumaian, Hagop H., 498
Tiel, Arthur Rogers, 47
Timmermann, 1866
Todd, Benjamin H., 48
Tolles, Clarence Weston, 179
Toole, James A., 1593
Trenaman, Thomas, 47
Trigg, Alfred L., 48
Trott, W. J., 336
Troutman, Columbus L., 1685
Traux, Walter E., 336
Trulson, Louis M., 1126
Trump, Jacob F., 2302
Trush, Jacob, 1311
Tucker, Adelaide M. Griffin, 594
Tullis, Eli R., 48
Turk, William L., 1685
Turner, Charles B., 2057
Turner, Harriet E., 1593
Turner, Jennie Mary, 1407
Turner, William S., 2303
Tuthill, John W., 499
Tydings, Joseph Morrison, 2057
Tyrrell, Pierce, 2147
Umstad, John R., 960
Utter, Joseph A., 961
Vail, James Luther 880
Vaillancourt, Arthur, 1045
Van Alstyne, John L., 595
Van Altena, Louis, 179
Van Dyke, Charles M., 1592
Van Etten, Cornelius S., 1311
Van Kirk, Joseph, 417
Van Matre, Cassius Emmet, 2057
Van Tine, Margaret H., 1127
Van Zandt, Euclid, 2244
Vebber, Frank Merril, 1777
Vedder, Maus Rosa, 47
Venus, E., 1965
Vianna, G., 1042
Violet, Josiah Claire, 2302
Von Osinski, Joseph, 1685
Von Starkloff, Hugo Maximilian, 1776
Vredenburg, Samuel Hamilton, 1593
Waddey, Ernest J., 1592
Wagner, Clinton, 2244
Wagener, Nicholas Z., 1592
Wagner, Philip Matthew, 594
Wakefield, Harry C., U. S. P. H. S., 1592
Walden, Delmso A., 498
Wales, Theron Augustus, 1311
Wales, Westley Rogers, 881
Walker, Archibald Dunn, 1685
Walker, Gustave F., 961
Walker, Harry T., 2244
Walker, James H., 1592
Walker, Milton M., 1045
Walker, Richard P., 1045
Walker, William B., 1592
Walker, William Ernest, 2244
Wamsley, James A., 2303
Ward, Milan Theron, 417
Ward, Nathaniel P., 961
Ward, Velpeau Jackson, 1685
Ware, James Bacon, 1685
Warren, Albert Roderick, 698
Wasson, Jeremiah Chapman, 499
Waterhouse, John Edward, 2303
Watkins, Archibald S., 499
Watlington, Thomas J., 961
Watson, James Morris, 417
Way, Osmon Baker, 1968
Weaver, Sydney J., 1126
Webb, Adam Lindsey Wright, 1869
Webb, Benjamin Oliver, 257
Webb, Ella S., 2057
Webb, Rufus C., 336
Webner, Henry William, 417
Welch, Henry Walmsley, 1045
Wells, Winfield Scott, 48
Welsh, Frederick Edwin, 1126
Wert, Mason O., 417
Wertheim, 1866
West, Eugene V., 2057
Westcott, Joseph B., 499
Westfall, Alonzo M. W., 1593
Whaley, Leonard T., 881
White, Charles Henry, 698
White, Robert, 1592
Whitfield, James Bryan, 178
Whitmer, Benjamin F., 2244
Wiest, Harry George, 257
Wilcox, Daniel Boone, 179
Wildes, Adeline Wilkins, 2303
Wiles, Leslie Levi, 498
Wiley, John Irvine, 2245
Wilkes, James Howell, 178
Wilkins, John N., 1045
Wilkinson, Truman G., 1126
Willard, Isaac Newton, 1593
Williams, Charles L., 498
Williams, Edwin Kindle, 1219
Williams, George W., 595
Williams, Herbert Forrest, 595
Willis, Hugh, 48
Willis, William H., 336
Wilson, Alvah Miller, 1969
Wilson, Edward,, 417
Wilson, Elton L., 2245
Wilson, Francis M., 2057
Wilson, James Foster, 499
Wilson, James Thompson, 1969
Wilson, John S., 2147
Wilson, Joseph Glass, 1593
Wingo, Thomas Rud, 2147
Winslow, Charles Edward, 1045
Wise, George Franklin, 1685
Wolfe, Aaron Robert, 1593
Wood, Adolphus G., 1219
Wood, James Robie, 880
Wood, William I., 697
Wood, William Thomas, 1311
Woodburn, James Taylor, 1869
Woodbury, John McGraw, 1219
Woodson, Landon Aubry, 417
Woodson, William Madison, 48
Woodward, Manoah M., 1311
Worrall, Isaac Grimshaw, 1969
Worthington, Joseph Muse, 1969
Wren, Edward R., 1969
Wright, Albert Elliott, 2245
Wright, Uriel S., 961
Wyman, Benjamin F., 1592
Wysong, Luther E., 1127
Yankauer, Grace Greenwood Prior, 594
Yeager, Frank N., 2057
Yeakley, William Holmes, 257
Yount, Daniel McD., 698

E

EAR: See *also Labyrinth*
EAR abscess in neck of otitic origin, (108) 1888
abscess of middle, intracranial complications following, (43) 60
anesthesia in operations on, (87) 429
bacterins in diseases of, (76) 509, (64) 707
caloric vestibular reaction, loss of, with operative findings, (105) 1698
cancer of, 3 cases, (100) 1514
complications of exanthemata, etiology, diagnosis and treatment, (104) 1698
curette for endotympanum, (126) 1698
discharging, chronic, and life insurance, (55) 1506
diseases in school children, economic importance of, (97) 608
diseases, sonorous vibrations in, *2220
fistula symptom in, non-suppurative diseases of, (29) 273
infection, chronic focal, of nose, *throat, mouth and,* *1636
injuries of, inner, (69) 197
injury of, from explosives, (47) 1795, (33) 2263
intracranial diseases from, (46) 2260
meningitis secondary to diseases of, (100) 1146

EAR; middle, bacillus tuberculosis and coli infection of, (93) 1425
  middle, complications of measles in immigrant children, (8) 887
  middle, thrombophlebitis of sigmoid sinus originating in, *1389
  middle, to repair defect left after operation on, (101) 436
  myiasis of, radical mastoid operation with, *479
  nose and throat, local manifestations in, associated with disease of nervous system (66) 890
  radium in diseases of, (106) 970
  restoration of, (45) 1142
  suppuration of, operation for, (79) 429
  syphilis of, (26) 273
  syringe for nose, throat and, (64) 197
  vaccine therapy in diseases of, (101) 2163
EARTHWORMS, reaction of, to hydroxyl ions, (10) 508
ECHINOCOCCOSIS in California, (39) 427
  in 3 children, (173) 439
  liver, diagnosis of, (99) 1990
  liver, jaundice from pressure of, (147) 72
  liver perforating into bile passages, operative treatment of, (59) 434
  lungs, (183) 286
  of diaphragm, of crura, suppurating, (9) 199
  omentum, single, (78) 357
  peritoneum, secondary multiple, complicating acute appendicitis, (38) 1325
ECK fistula, technic of, (20) 1879
ECKMAN'S Alterative, a fraudulent consumption cure, 1686—P
ECLAMPSIA, (83) 197, (75) 353, (33) 1055
  cesarean section in, (123) 1234
  cesarean section in, 500 cases, (1) 349
  etiology and treatment, (60) 969
  etiology of albuminuria and, and accidental hemorrhage, (15) 1884
  morphin in puerperal, 514
  pathogenesis of, (95) 1705
  prevention of puerperal, (83) 275
  surgery in, *818
  threatened, (95) 62
  toxicity of urine, serum and colostrum in pregnancy, labor and puerperium not proportional to clinical picture in, (64) 812
  treatment of, conservative vs. radical, 1878—ab
  treatment on basis of salt retention, (193) 440
  veratrone in, (8) 1507
ECTROPION corrected by skin grafts, (115) 1882
ECZEMA in infants, (13) 1700, (22) 2262
  in infants and children, causes and treatment, (91) 608, (13) 1980
  Swiss sulphur mineral water in acne and, (34) 1141
EDEMA, congenital, due to lymphangiectasis, (106) 814
  gaseous, (18) 1054
  liver disease with, (47) 811
  lung, treatment of, (71) 811
  malignant, in wounds in war, (11) 2261
  origin of, with nephritis, (56) 1613
  production and distribution of, factor in, (16) 195
  restriction of fluids in, not traceable to heart or kidney disease, (63) 2167
  scrotum, treatment of, (116) 1705
  segregation of blood in limbs to relieve congestion of internal organs, hemorrhage or, (116) 359
EDUCATION: See also *Colleges; Schools; University*
EDUCATION, higher preliminary, requirements in Louisiana, 1873
  higher preliminary requirements in Oklahoma, 1412
  in neurology, *1707
  medical, and medical profession, 1692—ab
  medical, and registration, general council of United Kingdom, (14) 1141
  medical and the public, 1226—ab
  medical, habit of observation and, 765—ab
  medical, important epoch in, 1485—E
  medical, in United States, 683
  medical, medical history in, 2046—E
  medical, of earlier day, 1875—ab
  medical, Ohio State University and fads in, 1209—E
  medical, special items concerning, 681
  medical, standards of A. M. A. Council on, 666
  medico-pedagogic methods in primary school, (22) 354
  number of British Medical Journal, (1) 1235
  of specialist, (51) 275
  postgraduate, 1969—C
  public health, (65) 1137
  state requirements of higher preliminary, 671
EFFICIENCY and muscular work, 1206—E
  and quality of life, (109) 1327
EFFUSIONS and transudates, differentiation of, by albumin content, (109) 282, (55) 356
  serous, chemistry of, (71) 1606
  tuberculous, mercury test for, (111) 814
EGG, albumin of, infant sensitization to, (79) 1982
  commercial, bacteriologic and chemical quality of, 1598—ab
  habits of ducks render duck eggs more liable to infection than hens', (53) 896
  poisoning and asthma in children, (26) 1880
  water-glass in preservation of, 883
EHRLICH'S hematoxylin stain, 502
EISENZUCKER, 421
ELBOW, abduction and fixation of, in fracture of surgical neck of humerus, (118) 2075
  dislocation, old, reduction by operation, (10) 431, (77) 711
  exostosis on heel or, (31) 1237
  joint fractures about, treatment, (63) 1790
  joint, osseous new growths at, following injuries to joint, (26) 709
ELECTRARGOL for injection, 165
  in small-pox and plague, (12) 199
ELECTRIC conductability of urine in diagnosis of kidney disease, (55) 976
  department of Glasgow Royal Infirmary, (20) 1700
  drill, saw, reamer and trephine in bone surgery, (155) 277
  light for infected gangrenous or torpid wounds, (48) 1701
  massage in chronic constipation, (63) 279
  ophthalmoscope, new, (163) 973
  shock, first aid to those overcome by mine gases and, 1784—ab
  stimulation of phrenic nerve and roentgenoscopic findings, (107) 713
  treatment of cancer, 192—ab, (107) 1327
  treatment of disease of cerebrum, (1) 1883
  treatment of neuritis, (62) 279
  treatment of obesity, Bergonie's method, (113) 1334, (66) 1430
  treatment of tabes, (65) 1510
  treatment, technic and results of certain forms of, (151) 360
ELECTRICITY: See also *Arsonvalization; Cautery; Electrotherapy; Faradic Current; Fulguration; High Frequency Currents*
ELECTRICITY in military hospitals, improvised arrangement for, (34) 2166
  reflexes under, *1568
ELECTROCARDIOGRAM, cause of phase difference between homonymous peaks of, (17) 1604
ELECTROCARDIOGRAPH, demonstration of, (100) 62
  in study of heart, (75) 1790
  record over long periods, (102) 518
ELECTROCARDIOGRAPHY, technic for, improved, (50) 1143
ELECTROLYSIS in cystitis, (34) 1985
  in hemorrhoids, (89) 510
  in lead poisoning, (25, 26) 1611
  negative results of, in eradication of diphtheria bacilli from tonsils, (170) 206
ELECTROMAGNETIC balance, Hughes', in military surgery, 2055
ELECTROMAGNETS, bullets extracted by, 1491
ELEPHANTIASIS, (65) 1606
  lymphangitica, (74) 1233
  simulated, report of case, *548
ELLIOT trephine operation and Lagrange sclerectomy for glaucoma, (103) 608
  trephine operation for glaucoma, *215
  trephine operation for glaucoma, late infection following, (4) 1139
EMBARIN, toxic by-effects of, (128) 205, (83) 1331
EMBOLISM, air, in brain, (87) 358
  air, with criminal abortion, (132) 283
  and thrombosis, in abdominal and pelvic surgery, *760
  and thrombosis in acute infections, (54) 197
  and thrombosis of mesenteric vessels, 1957—E
  cerebral, traumatic paradoxic, (77) 2168
  fat, in orthopedic operations, (89) 1145
  operation for, (90) 1241
  pulmonary, (49) 356
  pulmonary, structure of thrombus in, (53) 516
  pulmonary, Trendelenburg's operation for, (86) 203
EMBRYONAL cells, tumors induced by sensitized, (25) 1509
EMBRYOS, human, age of, in connection with last menstruation, (61) 1238
  human, anatomy of 17.8 mm., (2) 2159
EMETINE, administration of, to young and debilitated children, (17) 1695
  and young children, (30) 1700
  chlorhydrate of, in cholera, hypodermic injections of, (30) 709
  hydrochlorid and streptococcal vaccines in sprue (32) 200
  hydrochloride, Mulford, friable tablets of, 1953
  hydrochloride, Mulford, hypodermic tablets, dosage form of, 1204
  in amebic abscess of liver, (131) 1983
  in amebic dysentery, (101) 275, (54) 356, (3) 708, (48) 2160
  in dysentery in children, (27) 200
  in lamblia dysentery, (66) 1331
  in pyorrhea alveolaris, *1746, (100) 1982
  ipecac and neosalvarsan in entamebiasis, (122) 430
EMIGRATION and hygiene, 593
EMMERICH, death of, 2053
EMOTION as factor in etiology of suicide, criminality, insanity and mortality, (45) 1880
  effect of, on bodily changes, 1415—ab
  fluctuations in gastric secretion under, (53) 1987
EMPHYSEMA following stenosis of trachea with goiter, (73) 613
  retroperitoneal and extensive subcutaneous, following intratracheal anesthesia, recovery, (112) 2163
  treatment of pleurisy and, (92) 1242
EMPLOYEES give better service as result of sanitary conditions, 51—ab, 1034—E
  injured, corporations not bound for attendance on, 2067—Ml
  injured, physician made agent to contract with hospital for care of, 1414—Ml
  hospital, special building for, (98) 275
  washrooms for, law requiring, constitutional, 2255—Ml
EMPYEMA, apparatus for suction and aspiration in, 191—ab
  chronic, technic for extensive resection of thorax for, (38) 976
  drainage in, (32) 976, (52) 2261
  ethmoid cells and mental disturbances, (75) 707
  formalin solution injection in subphrenic abscess and, (41) 1231
  in children, (12) 432
  meningococcic, (111) 1983
  pleural, treatment of, 21 cases, (138) 2170
  pleuritic effusions and, with pneumonia, (36) 2269
  postoperative pleurisy with effusion and, (143) 1608
  surgical treatment of, (88) 608
  thoracic, surgical treatment of, (128) 198, (56) 352
  visceral pleurectomy for chronic, 2 cases of, (32) 350
EMULSION, bacilli tubercle, in extensive lupus, (84) 1507
  hand, bone-plastic operation for, (69) 1060
  in joint capsule, (72) 202
  larynx, (107) 980
  unilateral multiple, in girl of six, (98) 1146
ENDAMOEBA mortinatalium as human parasite, (33) 1789
  oral, tonsils habitat for, *1746
ENDO - ANEURYSMORRHAPHY, *1448
ENDOCARDITIS, acute, embolic aneurysm with, (137) 616
  chronic, infective, (38) 1605
  in children, (35) 1605
  rheumatic, auricular flutter in, (86) 353
  subacute bacterial, early symptomatology of, (23) 1980
  traumatic, (61) 1424
ENDOMETRITIS, gonorrheal, and cervicitis, pathology and treatment, (2) 349
ENDOMETRIUM, biochemical function of, in etiology of metrorrhagia and menorrhagia, (101) 429
ENEMAS, (31) 1880
  duodenal, in toxemia of pregnancy, (91) 429
ENERGY, musclar work from standpoint of heat and, (128) 1890
  requirement in disease, *827
  surplus, and progressive evolution, 2272—ab
ENGELBRETH'S mercury inhalation in syphilis, (201) 440
ENGELHARD, G. P., and Proprietary Association of America, 408—E
ENGLAND, army medical service in, 957
  at war, medical notes on, 2303—C
  during war, 1867
  patent medicines in, 1046—P
  patriotic physicians in, 1404
  proprietary prescribing in, 1484—E
  scarcity of drugs in, 1216
  to manufacture synthetic drugs, 957
  war and economics of prescribing in, 1484—E
ENTAMEBA histolytica, morphology, life cycle and relation to disease of, (18) 1324
  intestinal, differential diagnosis of, (41) 273
  of man in Canal Zone, (1) 708
ENTAMEBIASIS, (11) 974, (31) 1140
  in patients of Philippine General Hospital, (121) 430
  ipecac, emetin and neosalvarsan in, (122) 430
ENTERITIS, acute, and hemiplegia in 2 infants, (40) 514
  pneumococcus, ulcerative, with peritonitis, following lobar pneumonia, *2288
  of new-born with general intestinal infection, (191) 439
ENTEROCOCCUS, puerperal infection with, (22) 278
ENTEROPTOSIS: See also *Splanchnoptosis*
ENTEROPTOSIS, asthenia and, (84) 1888
  operation for, (3) 508
ENURESIS, (36) 1696
  diagnosis of nocturnal, (232) 363
  etiology of nocturnal, (239) 364
  in children, 1417—ab
  serotherapy for nocturnal, (64) 434
ENVIRONMENT, adaptation to, 1575—ab
  reaction of normal organism on, 1087—ab
ENZYMES, action of, (17) 1427
  action of urease and, (60) 1697
  purin, of orang-utan and chimpanzee, (32) 605
  Roentgen rays and action of, (14) 1503
  starch-digesting, in urine, 2295—E
EORHYNCHUS, proposed new name for neorhynchus Hamann preoccupied, (74) 1424
EOSINOPHILIA in anaphylactic reactions, (99) 1982
  in chorea, (85) 607
  in diatheses and conditions suggesting anaphylaxis, (21) 1141
  increase of, after injection of tuberculin, (127) 360
EPIDEMICS during Mecca pilgrimages, prophylaxis of, (113) 1705

- EPIDEMICS in field, prophylaxis of, (66) 1886
  - in war time, (48) 1430, 1866, (72) 1887, (87) 1888, 2145
  - prophylaxis of, (92) 1704, (104) 1705
  - prophylaxis of, during war, 1217, (84) 2079, (35) 2166
  - prophylaxis of, in eastern Austria, 1404
  - prophylaxis of, in Germany, 1310
- EPIDIDYMIS, lipoma of, (233) 363
  - tuberculosis of kidney and, relationship between, (20) 2310
- EPIDIDYMITIS, acute, operative treatment of, (8) 2309
  - gonorrheal, operative treatment of, (51) 811
- EPIDIDYMOSTOMY, permanent, for relief of sterility, *1916
- EPIGASTRIC artery, aneurysm of vein and, (112) 510
  - wounds, non-infected, delayed union in, (16) 2070
- EPILEPSY, blood in, coagulation time of, (69) 1880
  - crotalin in, (90) 62, (113) 1234, (104) 1327, *1749, 2151—C
  - diagnosis of, *1652, (11) 1793
  - epileptoid convulsions in alcoholics and, (66) 1880
  - hypophysis cerebri in, (54) 1423
  - intestinal indigestion in children in production of, 1133—ab, (60) 2161
  - Jacksonian, *operative treatment* of, (95) 353, (96) 1233
  - nature and treatment of, (95) 518
  - Pasteur treatment and, (93) 614
  - prevention of, (65) 1880
  - psychic, (55) 606
  - puncture of corpus callosum in idiocy and, (28) 1237
  - recoveries from, (41) 1325
  - reflex, operative treatment for, (81) 712
  - relation of, to hypophysis disturbance, psychoses and personality, (73) 806
  - roentgenology of, (26) 1054
  - social aspects of, (68) 1880
  - surgical treatment of, (132) 616, *(42) 1061*
  - tuberous sclerosis and, *1348
- EPILEPTIC, accidents to unsuitably employed, 1971
  - care of, in United States and Canada, public and private, (67) 1880
  - constitution, personal study of, (11) 1978
- EPILEPTIFORM convulsions in scarlet fever, (55) 710
- EPINEPHRIN, absorption from mucosa of nose, *208
  - action of, on blood-pressure in typhoid and pneumonia, (112) 2081
  - action of, on liver, (179) 439
  - and cocain, surface anesthesia, (97) 1507
  - and pituitary extract in acute infectious heart weakness in children, (147) 284
  - as supporter of bodily activity under emotional stress, action of, 322—E
  - content of adrenals markedly reduced during peritonitis, (34) 976
  - effect of, on sympathetic nervous system of infant, (192) 362
  - in Addison's disease, dangerous action of, (59) 2167
  - in blood, influence of, on cholesterin and urea content of blood and cerebrospinal fluid in sick and healthy children, (125) 1706
  - in peritonitis, action of poisons on blood-vessels of inflamed tissues and of, (98) 1990
  - in thyroid enlargement, (63) 1982
  - influence on respiration, (11) 272
- EPIPHARYNX in children, (28) 273
- EPIPHYSIS, lower, of femur, separation of, operative treatment, (114) 2170
  - transplantation, experimental, (69) 357
- EPISCOPE, roentgenographic centroscope and, (31) 2076
- EPISTAXIS, (99) 1697
- EPITHELIOMA, eye-lids, *751
  - pterygium followed by, (89) 807
  - removal of facial blemishes and, (133) 2164
  - thymus, in myasthenia, (17) 1059
  - varium, (122) 2164
- EPITHELIUM-proliferating action of amino-azobenzois, (43) 1238
- EPITHELIUM, skin, of adult frog, cultivation of, (26) 2259
- EQUILIBRIUM, semicircular canals and function of, (25) 273
- ERGOAPIOL refused recognition by Council, 2148—P
- ERGOT and acetylcholin preparations, 2136—E
  - poisoning, isolation of ergotinin crystals from organs in acute, *1203
- ERGOTININ crystals, isolation of from organs in acute ergot poisoning, *1203
- ERUPTION, annular, serpiginous, bullous, complicating vaccination, (109) 2163
  - following operation, (151) 1608
  - with gonorrhea, (56) 1510
- ERYSIPELAS, cancer disappears after intercurrent, (90) 1798
  - of anemia type, (103) 203
  - staphylococcus, (104) 2169
  - treatment of, (86) 1513
- ERYTHEMA group, 3 cases of, (49) 352
  - infectious, (46) 1143
  - nodosum and scarlet fever, (169) 361
  - nodosum and tuberculosis, *1266
- ERYTHROCYTES: See Blood-Corpuscles, Red
- ERYTHROCYTURIA in infants and children, (102) 814
- ESKIMO, Alaskan, (3) 1420
- *ESOPHAGO-BRONCHIAL* fistula, (59) 1790
- ESOPHAGOSCOPE, new, (20) 273
- ESOPHAGOSCOPY, (27) 273
  - direct, with modified Bruning's bronchoscope, (55) 1232
- ESOPHAGOTHERMIA in stenosis, (84) 1331
- ESOPHAGUS, bronchoscope in direct examination of larynx, trachea, bronchi and, (62) 707
  - cancer of, bismuth passes into bronchi through *perforation in*, (58) 1987
  - cancer of lower, operation for, (45) 1061
  - cancer of throat and, radiotherapy technic for, (81) 1060
  - cancer, resection of cardial section of, (57) 1144
  - examination of heart through, (115) 1244
  - foreign body, jackstones, impacted in, report of 3 cases, (13) 1053
  - inflatable bulb for occlusion of lower, in danger of aspiration of vomit, (49) 1613
  - lye injury to, (96) 1146
  - metastatic obstruction of, by false membrane in fatal diphtheria, (91) 2169
  - myomas of cardia and, (109) 70
  - plastic operations on, technical points for, (159) 361
  - pulsions diverticulum in, (84) 614
  - restoration of, or substitutes for, (54) 2078
  - roentgenoscopy in lesions of, 1322—ab
  - stenosis, esophagothermia in, (84) 1331
  - syphilis of, (3) 967
  - thoracic, access to, (58) 1144
  - transverse resection of larynx and, (88) 203
  - upper, direct access to, (112) 519
- ESPERANTIST Congress and physicians, 592
- ETHER and chloroform anesthesia, effects of, on protein contents of blood serum of rabbits, (93) 970
  - and oil rectal anesthesia, (77) 607, (45) 1325, (92) 1425
  - anesthesia, (93) 62, (92) 1233
  - anesthesia by intratracheal insufflation, (31) 2165
  - anesthesia, intravenous, (72) 1056
  - anesthesia, intravenous, general, (39) 1060
  - anesthetic action between magnesium salts, chloroform and, 584—E
  - dressings in gynecology, (53) 811
  - inhaler, improved, (86) 1791
  - intratracheal insufflation of, (15) 894
  - vapor, intrapharyngeal *administration* of warmed, by nasal route, (27) 610
- ETHICS: See also Fee-Splitting; Physician; Profession; Practice, Contract
- ETHICS, (34) 509, (68) 1326
  - Associated Advertising Clubs of America and, 885—ab
- ETHICS, custom of younger physicians calling on older, 1971
  - medical, (25) 1135, 1229—ab
  - medical, *and regulation of practice* of medicine during war, (27) 2202
  - medical, principles of, (20) 508
  - professional, (99) 1234
- *ETHMOID cells, empyema of, and* mental disturbances, (75) 707
  - involvement of, in retrobulbar neuritis, (82) 1790
  - labyrinth, pathology of, *2100
- ETHMOIDITIS, acute, in child, orbital abscess with optic neuritis due to, (107) 1698
  - clinical classification of, *2097
- ETHYL CHLORID for minor operations, (46) 1429
  - induction of anesthesia and, (46) 1697
- EUCALYPTOL, injections of menthol and, in prophylaxis and treatment of postoperative bronchitis, (47) 976
- *EUGENICS, 1854—T, (88) 1982*
  - applied, (4) 1878
  - danger of Roentgen rays from standpoint of, (64) 1144
  - hereditary basis of, (51) 1697
  - in Huntington's chorea, value of, (92) 429
  - law, Wisconsin, constitutional, 602—Ml
  - lectures on, 592
- *EUSTACHIAN TUBE, nitrate of* silver in, for tinnitus, (29) 1420
  - Yankauer operation on, end-results, *1576
- EUTHANASIA, further note on supplicant for, 327—E
- EVOLUTION, conservation of, 2041—ab
- EXAMINATIONS, medical, observations on 31,000, (36) 1700
  - of sick, repeated, importance of, (101) 70
  - periodic, of well persons, 1417—ab
  - physical, federal court without power to order, 2157—Ml
  - questions, Colorado, 266
  - questions, Kentucky, 2250
  - questions, Oklahoma, 52
  - questions, Pennsylvania, 1130
  - thorough, *are they worth while*, (27) 1135
  - United States Civil Service, for epidemiologist, 1964
- EXAMINERS, Medical, Board of, provision as to fund, 2157—Ml
- EXAMINING bodies, medical, and schools of United Kingdom, (15) 1141
- EXANTHEMATA, aural complications *of, etiology, diagnosis and* treatment, (104) 1698
  - oral complications of, (103) 1698
- EXERCISE and rest in lung tuberculosis, 347—ab, (54) 2073
  - and self-massage for chronic constipation, *1669
  - heart and, 326—E
  - in heart disease, biologic effect of, (136) 616
  - muscular, body *temperature and* pulse-rate in man after, (13) 1503
  - muscular, influence of, on sugar and lactic-acid content of blood, (94) 203
  - outdoor, in cold climates, benefit to sedentary of, 1301—E
  - physical, and physical examination, 1951—T
  - test for officers of the navy, (99) 1881
- EXOPHTHALMOS, (266) 364
  - early sign in meningitis, (110) 814
  - hereditary malformation of chin and nose with strabismus and, (19) 1141
  - surgical treatment, *1147
- EXOSTOSES, multiple, rare complications of, (158) 361
  - on heel or elbow, (31) 1237
  - subscapular, with adventitious bursa, *1473
- EXPECTORANTS, clinical value of, (1) 1604, 2138—E
- EXPERT testimony and malpractice suits, (151) 972
  - testimony from standpoint of lawyer, (104) 1425
  - testimony, *suggestions* for change in state law concerning, (135) 893
- EXPERT testimony versus attending physician on mental condition, 801—Ml
- EXPLOSIONS in milling industry, loss of life by, 2137—E
- EXTENSION apparatus applied to surgical bed, (122) 510
  - from skin, thread and wire, in fractures and paralysis, (104) 615
- EXTENSOR response, bilateral, in unconsciousness, (22) 1329
- EXTRACT, alcoholic, of vegetables, for scurvy, (136) 283, (87) 1063
  - duodenal mucosa, physiologic and therapeutic action of, (60) 1987
  - leukocytic, in pneumococcus infections in rabbits, (25) 1980
  - leukocytic, in pneumonia, (30) 1980
  - leukocytic, production, action and therapeutic effects of, report on, (15) 604
  - of leeches, prophylactic treatment with, preliminary to laparotomies, (75) 357
  - of organs, toxicity of, (21) 1793, (127) 2170
  - pancreas, effect on blood-pressure in acute experimental nephritis in rabbits, (123) 360
  - Pituitary: See Pituitary Extract
  - thyroid, action on lungs of, (66) 1238
  - thyroid, effect on voluntary muscle, (8) 426
  - tissue, effect of, on growth of adult mammalian cells in vitro, (21) 2259
  - tumor, in treatment of tumors, (96) 1705
- EYE: See also Special Structures of Eye
- EYE anaphylaxis, experimental study of, (115) 1608, (110) 1881
  - and accessory sinuses of nose, physiologic and pathologic relations, (57) 197
  - artificial, making, (92) 1145
  - auto-intoxication and diseases of, (70) 1056
  - brain tumor causing symptoms in, (156) 1699
  - clinic for working people, self-supporting, (41) 2072
  - complications, nasal tampon treatment of sinus diseases and, (138) 199
  - congenital defects of, in children, (101) 2075
  - congenital phthisis bulbi, *1949
  - diseases, increased pressure of cerebrospinal *fluid in*, (73) 2020
  - displacement of, voluntary, (133) 1234
  - drainage of intra-ocular and intracranial fluids into venous system, *(47) 1506*
  - drainage of intra-ocular fluids, (46) 1506
  - enucleation and sympathetic inflammation, (114) 354
  - enucleation, easy method of, (37) 2072
  - enucleation, snare in, (140) 1328
  - enucleation, with implantation of gold ball, (129) 1234
  - enucleation with *transplantation* of fat into orbit, *545
  - feeblemindedness and, (74) 1881
  - fluids, analogous processes of ocular and cerebral fluids, (48) 1506
  - foreign body in, and suicide, (19) 967
  - foreign body in, magnetic treatment of, (64) 969
  - foreign body in, *method of removal*, (75) 275
  - foreign body, steel and iron particles in, extraction of, by electromagnet, (59) 1982
  - fundus oculi, (120) 63
  - heredity in anomalies of, (93) 2074
  - in general practice, (28) 2260
  - infectious disease cause of loss of, 1052—Ml
  - injury, (102) 1705
  - injury during labor, (31) 1428
  - injury, in field, (75) 1703, (55) 1885, (66) 2079
  - injury, prognosis of, (116) 1882
  - intracranial traumatic arteriovenous aneurysm affecting both, (16) 2165
  - legal aspects of practice of medicine and eye work, (85) 197
  - light on, effect of, (134) 971, 1603—ab
  - lighting and efficiency of, (63) 1055

EYE, Mendelian law and inherited conditions of, (22) 2310
  nasal sinus infection causing diseases of, (152) 972, (50) 1430
  neuritis of, sympathetic, or transferred papilloretinitis, (162) 973
  oculomotor paralysis of otitic origin, (10) 2261
  of children, (1) 973
  operations on extra-ocular muscles, (106) 2075
  paralysis due to tabes, pathology of, 2257—ab
  paralysis of external muscles of, with lead-poisoning, *403
  phlyctenular affections, bacillus of bovine tuberculosis in, (25) 610
  pneumococcus infections of, modern therapy of, (111) 1882
  pregnancy and diseases of, *25
  pregnancy kidney trouble with ocular symptoms, (191) 362
  protective ferments in diseases of, (40) 2166
  radiant energy, effect of, on lens and humors of, (3) 2258
  rotations of, (113) 354
  salvarsan and, (16) 967
  sarcoma, (130) 1328
  sarcoma of eyeball, (186) 439
  syphilis, in hereditary syphilis, (14) 1135
  syphilis of nervous system and symptoms in, (14) 967
  syphilis, therapeutics of, (15) 967
  tuberculosis, chronic, *13
  tumor, 1500—ab
  tumor, malignant intra-ocular, (120) 608
  ultraviolet radiation on, harmless, 1394—E
  uncinariasis and, *151
  vaccine therapy in bacterial diseases of, (35) 1696
  wounds of, emergency treatment, (45) 1701
  wounds of, in war, (57) 2264, (12) 2311
EYEBALLS, absence of, (9) 349
  paraffin prothesis for, (76) 1432
  spontaneous rolling up, on attempt at adduction with congenital paralysis of the external rectus muscle, 2 cases, (261) 364
EYELIDS, ectropion of, corrected by skin-grafts, (115) 1882
  epithelioma of, *751
  nystagmus through closed, (37) 1055
  ptosis of, operation for, (67) 1056
  quivering, cause of, 1048
  upper, associated movement of jaw and, (3) 894
EYESIGHT, influence of schoolbooks on, of children, 885—ab
  of children, (1) 973
EYE-STRAIN, (93) 1697
  and lighting, 484—E

F

FACE blemishes, removal of epitheliomata and, (133) 2164
  expression of, in disease, (66) 2073
  gunshot wounds of neck and, (105) 359
  hemiatrophy of, 269—ab
  Neuralgia of: See Neuralgia, Trifacial
  paralysis, bilateral peripheral, *1155, (39) 1880
  paralysis, surgical treatment, (32) 2260
  table attachment for surgery on throat, *neck* and, *483
FACTORY legislation, rise and progress of, (8) 974
FAITH cures contrasted with scientific mental healing, (138) 1234
FALLOPIAN TUBE, adenomyomata of sigmoid and, with adenomyoma of uterus, (16) 1610
  cancer of, primary, (17) 1504
  hernia of uterus, vagina and, in [illegible] f, with [illegible] (12) 688
FAMILY encyclopedia of medicine, 334
FAMINE in Labrador, 1588
FARADIC stimuli, physical and physiologic study, (21) 2070
FARADIZATION, treatment by general rhythmic, (61) 279
FARM as starting point for disease, 2048—E
FAR-SIGHTEDNESS, causes of long-sightedness, cataract and, (64) 1056
FASCIA Flaps: See also Grafting; Transplantation
FASCIA FLAP in ankylosis of lower jaw, (35) 1330
  flap to bridge gap in tendon in hand, (168) 438
  lata, free transplantation of, (31) 1605
  patch to cure hernia of muscle, (22) 975
  transplantation, autogenous, (121) 510
  transplantation for hernia, (51) 1790
  transplantation in abdominal wall injuries, (47) 356
  transplanted, histologic changes in, (70) 357
FAT, absorption of, from intestinal tract of tuberculous children, (6) 1135
  acids and coagulation of blood, (3, 40) 1142
  and lipoid content of blood increased in pregnancy, 1299—E
  and proteids in infant feeding, management of, (130) 198
  body, and milk fat, identity of pigments of, 948—E
  constipation in artificially fed infants, (56) 275
  content of blood, 2047—E
  content of blood, variations in, under normal conditions, (59) 1232
  distribution of lecithin, wax-splitting ferments and, in the organs, (71) 1331
  embolism in orthopedic operations, (89) 1145
  in beef, no basis for prejudice of public against high color of, used as *food*, 1210—E
  in liver in chronic alcoholism, (93) 1616
  in sputum, (69) 1144
  influence of, on stomach digestion of milk, (107) 1243
  interposition of, in operating on joints, (116) 2170
  staining of, differential, (11) 1058
  stains for differentiation in preparing museum specimens, (10) 1058
  toxic action of, fed to laboratory animals, (150) 438
  transplantation into orbit with enucleation, *545
FATIGUE, industrial, (25) 200
  toxins in immunity, (39) 2312
FAVUS and ringworm of nails, *640
FEAR and anger, effect of, on bodily changes, 1415—ab
FECES, carmin for marking off, (80) 357
  characteristics of bacteria of colon type found in bovine, (30) 804
  concrements cause of appendicitis, 9 cases, (106) 2169
  contribution of bacteria to, after feeding diets free from indigestible components, (34) 605
  diastatic ferment in, and variation in diseases of pancreas in achylia gastrica, (25) 705
  occult blood in, (114) 519
  occult blood in, dry test for, (57) 1987
  phenolphthalein test for occult blood in, (91) 1241
  receptacle to receive, and send for examination, (39) 1429
  stercobilin in, quantitative test for, (117) 2170
  typhoid bacilli in, determination of, (78) 2079
FECUNDATION, conception and gestation, (70) 1326
FEDERAL court without *power* to order physical examination, 2157—Ml
FEDERATION of American Societies for Experimental Biology, meeting, 2143
FEE bills and insurance companies, 1223—C
  cut, and country physician, (72) 429
  medical and surgical, (113) 608
  medical, in Bohemia, 344—ab
  splitting and commission, 503—ME
  splitting and Ontario Medical Association, 414
  surgical, 262—C
FEEBLE-MINDED: See also Degeneracy; *Delinquency*; Idiots
FEEBLE-MINDED, (37) 1880
  adenoids and tonsils in, (73) 1881
  aliens, medical examination of, (3) 1878
FEEBLE-MINDED, brain lesions, organic, in, (72) 1880
  children, (20) 354
  children, nervous and mental findings in, (76) 1881
  children, training of, gratifying results in, (29) 810
  children, treatment, care and training of, (81) 509
  duty of state to protect society from, (36) 1880
  environment and social relation, (75) 1881
  examination of, parental cooperation in, (61) 1137
  eyes and the, (74) 1881
  in Maine, state care and training, (80) 353
  law and the, (108) 1534
  neosalvarsan in treatment of, (18) 1700
  problems of, 1580—E
  sterilization of, from physiological standpoint, (104) 970
  sterilization, segregation or custodial care of, (61) 1880
  syphilis and the, (82) 1881
FEEDING: See also Diet; Nutrition
FEEDING by duodenal tube, (96) 203
  humans according to formula, 947—ab
  Infant: See Infant Feeding
FEET: See Foot
FELLOWSHIP, teaching, *3, 51
FELON, treatment of, (100) 198
FEMORAL ARTERY, arteriovenous anastomosis of, for impending gangrene, (12) 803
  arteriovenous aneurysm of common, (50) 356
FEMUR, birth dislocation of lower epiphysis, (29) 1231
  exarticulation of, improved technic for, (50) 2077
  fracture, compound, treatment for, (20) 2262
  fracture, Hodgen's splint for, (134) 431
  fracture, in field, treatment of, (46) 1985
  fracture, intracapsular of neck, bloodless treatment of, (70) 1060
  fracture of head of, (29) 1509
  fracture of internal condyle of, wire nails for, (74) 353
  fracture of, into tuberculous knee-joint, *1027
  fracture of neck of, extension treatment in elderly subjects, (120) 1608
  fracture of neck of, treatment of, analysis of, (32) 1605
  fracture, sliding splint of plaster of Paris for, (124) 510
  fracture, subtrochanteric, (57) 1605
  osteitis deformans involving right, (12) 194
  roentgenoscopy of head of, interpretation, (67) 280
  sarcoma, periosteal round-celled, (38) 1506
  sarcoma, primary, of lower end, involving synovial membrane, (25) 1605
  separation of lower epiphysis of, operative treatment, (114) 2170
  tuberculosis of neck of, treatment, (21) 1509
  typical disease of upper epiphysis of, (34) 1330
FENGER memorial fund, 2239
FERMENTATION tubes, experimental studies of relative efficiency of, (8) 2159
FERMENTS, action of, revealed in histologic *section*, (45) 1613
  bacteria differentiation by protective, *not practicable*, (210) 362
  casein-splitting, (61) 2167
  defensive, in urine, recognition of, (81) 1607
  defensive, serum containing, in dementia praecox, (63) 2073
  diastatic, in feces and variation in diseases of pancreas in achylia gastrica, (25) 705
  digestive, action of, on fish poison, (218) 362, (96) 1989
  digestive, activity of preparations, 2235—E
  discussion on, 373
  gastric and pancreatic, effect of, on potency of tincture of *digitalis*, (42) 201
  peptolytic, in urine, (46) 1613
  peptolytic, in urine during cell destruction, (143) 284
  protective, against maize-albumin in serum of pellagrins, (78) 1241
FERMENTS, protective, against plant albumin, (55) 515
  protective, experimental proof of, under various conditions, (67) 1511
  protective, experimental study of, (118) 205, (132) 360
  protective, in antitoxins, (219) 362
  protective, in eye diseases, (40) 2166
  protective, in urine, (102) 713
  protective, not specific, (52) 1885
  protective, passive transmission of, (111) 204
  protective, passive transmission of, in mental disease, (96) 814
  protective, radiotherapy and production of, (107) 1705
  protective, serodiagnosis by eliminating unspecific and leaving specific, (94) 614
  protective, serodiagnosis by, in tuberculosis, (101) 1705
  protective, specificity of, (60) 2167
  proteolytic, contained in red blood-cells, 488—E
  wax-splitting, distribution in the organs of fat, lecithin and, (71) 1331
FERNANDEZ, Garcia, (128) 2164
FERTILIZATION: See Fecundation
FERTILIZER, industrial poisoning in manufacture of, (64) 1431
FETUS, abnormal, (124) 1608
  compressus, 2 cases, (113) 1244
  death of full-term, due to constriction of umbilical cord by amniotic bands, (145) 276
  diet of mother and development of, 873—E
  extra-uterine pregnancy with prolonged retention of, (19) 1508
  heart sounds in placenta praevia, study of, 1978—ab
  macerated fibromyxomatous degeneration of chorion with, (83) 607
  movements, origin and nature of, (77) 1056
  palpation of head, from rear, (159) 438
  retrogressive changes in blood-vessels and suspensory ligament of liver, (4) 1323
  shape of skull of, with contracted pelvis, (147) 206
  skull of human, of 40 mm., (2) 603, (1) 1323
  syphilis in, action on, from salvarsan given mother, (79) 1332
  trismus uteri, decapitating, (28) 65
FEVER, acute, and meteorologic conditions, (109) 1990
  albumin katabolism in work and, (125) 360
  from retention of infected masses, (55) 1613
  metabolism in, 1035—E
  nitrogen excretion in, *(40) 1126*
  Puerperal: See Puerperal Infection
  salicylate of soda treatment, 3,000 cases, *(35) 196*
  skimmed milk and its dilution in, *(106) 892*
FIBRILLATION, auricular, diagnosis and treatment, 271—ab
  auricular, paroxysmal, following auricular flutter, (24) 610
  cardiac, and chloroform anesthesia, (11) 1427
  ventricular, and cause of death under chloroform, (13) 1427
FIBRIN, in coagulation of blood, (122) 616
FIBRINOLYSIS in chronic liver insufficiency, (55) *2161*
FIBROID complicating breech presentation at 8½ months, confirmed by roentgenograms, (122) 63
  uterus, can surgery be eliminated in treatment of, (152) 1609
  uterus, diagnosis, and early surgical interference, (124) 1234
  uterus, myomectomy and resection in, 1418—ab, (11) 2070
  uterus, pregnant, unusual complication, (19) *1610*
  uterus, radium in uterus hemorrhage and, *622
  uterus, subserous, multiple, complicating pregnancy, hysterectomy for, (83) 607
FIBROLYSIN for old contracted cicatrices, (26) 1605
FIBROMA, ovary, (29) 514
  uterus, accompanying fibroma of broad ligament, (31) 975
  uterus, calcified, compressing sigmoid colon, (120) 892

FIBROMA, uterus, roentgenotherapy of hemorrhages and, (138) 616
FIBROMYOMA, uterus, treatment, (4) 1507
FIBROMYXOMATOUS degeneration of chorion with macerated fetus, (83) 607
FIBROSARCOMA in peritoneum, primary, (185) 439
FIBROSIS, lung, bacillus Friedlander vaccine for, (28) 355
FIBROSITIS, gluteal and crural, and spurious and genuine sciatica, (6) 1235
FIBULA, fracture of tibia and, bone transplantation in compound, (158) 1609
  transplantation, best bone for, in conservative operations, (46) 356
FILARIA bancrofti, embryo of, recovered from blood from lung in daytime, (28) 200
FILARIASIS in Cochin, (22) 709
FILTER, simple and inexpensive, (114) 2075
FILTRATION through Berkefeld filter, effect of, on coagulability of oxalated plasma, (19) 1604
FINGERS, acute suppurative spreading infections of hands and, surgical treatment, (90) 608
  congenital contractures of, (123) 892
  contracture of, correction, (61) 711
  ganglion of ring, (18) 1329
  prints, identification of 2 unknown dead soldiers by, (93) 429
  prints, to render them visible, (112) 1064
  trigger, cause and mechanism, (81) 61
FIRE-DAMP or methane indicator, 1226—ab
FIRST AID cars, 1774
  hospitals for industrial plants, (98) 275
  packet, 1683
  to those overcome by mine gases and electric shock, 1784—ab
  what constitutes? 795
FISH poison, action of digestive ferments on, (218) 362, (96) 1989
  poisoning, bacillus of, (85) 1146
FISSURE in ano or painful ulcer, (79) 806
FISTULA, Eck, technic of, (20) 1879
  esophago-bronchial, (59) 1790
  new method for following, *1670
  superior rectovaginal, after preliminary colostomy by abdominal route, (14) 64
  symptom in non-suppurative diseases of ear, (29) 273
  tardy, after cesarean section, (64) 711
  umbilical, symptomatic of tuberculous process in pubis, (60) 202
  vesicovaginal, (57) 1424
  vesicovaginal, after hysterectomy, closure of, (64) 2161
  vesicovaginal and rectovaginal, *238
  vesicovaginal, in child 8 years old, spontaneous cure after removal of hairpin, (8) 349
  vesicovaginal, new operation for, (11) 64
FITS: See Convulsions
FLASHLIGHT, autochrome photography of pathologic subjects, (33) 1605
FLAT-FOOT: See Talipes Planus
FLAX and linen workers, health of, 1413—ab
FLEAS, (3) 1609
  dog, behavior of parasite of Indian kala-azar in, (16) 1984
FLIES, (91) 892, (9) 1883, 2133—T
  and filth, (15) 350
  and infant mortality, 423—ab
  and manure as a nuisance, 43, 799—ab
  as carriers of disease, 1674—E
  black, bite of, pathologic, clinical and experimental study of lesions of, (49) 1981
  flight of, 2045—T
  house, (10) 1793
  life, cycle, breeding and some practical means of reducing multiplication of, in camp, (65) 806
FLORIDA medical news, 874, 1770, 1960, 2050
FLOUR, chlorin-bleached, gives bread objectional color, 1959—E
  moth in soldiers' biscuits, (7) 1699
FLUIDS, restriction of, in edema not traceable to heart or kidney disease, (63) 2167
FLUORESCENT screen, palpation under, caution concerning, (80) 61
FLYING clinics in treatment of rural schoolchildren, 1780—ab
FOERSTER'S operation in spastic paralysis, (67) 812
FOLIN'S methods of estimating non-protein nitrogen and urea content of blood in health and in disease, (25) 2071
FOOD, amins in, common, 1398—E
  and composition of urine, (55) 1423
  and Drugs Act, convictions under, 1408—P
  flow of digestive secretions, 1483 —E
  as cause and cure of disease, (100) 813
  dynamic action of, *824
  fresh air and proper, in tuberculosis, (44) 805
  immunity to disease caused by proper, 1297—T
  in hospital, (87) 1982
  in prisons in Germany and Denmark, (120) 2082
  in typhoid, effects of, on metabolism, *929, *932
  nutrition and, *819
  of civilian population during war, (67) 1613, (41) 1794
  pocketbook and, 1033—E
  poisoning from eating canned string beans, (29) 1696
  ration in Denmark, average, (130) 1890
  supply and state, (19) 2311
  value required by growing girls, 4 to 15, (2) 277
  war and alcohol, (88) 1512
FOOT, amputation of, in field, (80) 1887
  as affected by modern shoe, (99) 2074
  care of, (52) 1795
  failure to invert, in treatment of Pott's fracture, 1599—Ml
  lipoma in, sciatica cured by removal of, (153) 206
  mechanic considerations of human, (17) 2076
  melanoblastomas of, report of 10 cases, (13) 803
  muscle bound, (119) 1698
  pump apparatus for local anesthesia, (32) 2311
  soldiers' footgear and, (8) 1883, (18) 2076 (42) 2166
  sore, British Red Cross Association on treatment of, 1216
  static, troubles, operative aspects of, (128) 1608
  strain of, anatomic explanation with suggestions for treatment, (117) 608
  troubles as factor in human efficiency, (97) 1881
  tumors, soldiers', (54) 1796
  twitching, (44) 509
  tuberculosis of, and flat-foot, relations between, (71) 613
  weak and flat, treatment of, 1229—ab, (58) 2161
FOOT-AND-MOUTH DISEASE, 1766—E, 1774, 1783—ab, 1963
  federal quarantine, partially lifted, 2053
  in man, suspected case of, (6) 431
FORAMINA, trifacial, osteoplastic closure of, *1245
FORCE of Life Chemical Company, 499—P
FORCEPS, high, and cesarean section, (46) 1325
  in obstetrics, abuse of, (54) 806
  intra-uterine, (104) 203
  modified, (65) 197
  surgical scissors and, 957
  thumb, for anastomosis, (47) 1421
FORCHHEIMER, Frederick, an appreciation, (53) 197, (91) 708
FOREIGN BODIES, appendix containing bird shot, *867
  bladder, *656
  bronchi, (44) 612
  bronchus, extraction with bronchoscopy, 3 cases, (29) 1059
  bronchus, tack in eparterial branch of right main, *2129
  esophagus, jackstones impacted in, report of 3 cases, (13) 1053
  eye, and suicide, (19) 967
  eye, extraction of steel and iron particles from, by electro-magnet, (59) 1982
  eyeball, method of removal, (75) 275
  heart, needle found in physician's, 494
  larynx, removal of, by suspension laryngoscopy, (26) 432
  larynx, sand-spur in, removal, report of 2 cases, (29) 605
  localization of, with Roentgen rays, (25) 2311
  magnetic, in eye, treatment, (64) 969
  nose, harness rivets removed from, *1474
  radius, as pin cushion, (52) 2160
  stomach, *1026
  stomach, needle protruding through wall of, (83) 61
  submaxillary gland, *403
  swallowed or inhaled, importance of thorough examination, (15) 1058
FOREIGN medical news, 43, 254, 333, 494, 590, 696, 1042, 1215, 1309, 1681, 1865, 1964, 2053, 2144
FORLANINI'S artificial pneumothorax, (25) 1880
FORMALDEHYD cauterization for climacteric hemorrhage, (94) 1333
  disinfection, *1025
  fumigation, (16) 2159
  gelatin capsules treated with, (64) 1506
  sterilization, improved technic for, (70) 1702
  sterilizer, simple, practical, *483
FORMALIN solution injection in empyema and subphrenic abscess, (41) 1231
FOURTH-OF-JULY celebration in 1914, 782—E
  injuries, 12th annual summary of, *777
FRACTURE, (76) 607, (76) 1326
  acetabulum, and dislocation of head of femur, mechanism of delivery with, (90) 2080
  and burns, (74) 1326
  and orthopedic operating-table combined, (107) 354
  apparatus for treatment, in modern war, (16) 1508, (27) 1610, (35) 1700
  apparatus to correct overriding stumps with, of long bone, (33) 1060
  bone pegging in, autoplastic intramedullary, (4) 512
  bone transplantation in ununited, (27) 2260
  bones, and wounds of joints, during Balkan war, (28) 1059
  calcaneus and earning capacity, (24) 1509
  clavicle, 268—ab, (42) 2260
  clavicle, damages and evidence in action for malpractice in, 1691—Ml
  compound and comminuted, early amputation for, (61) 2073
  compound, double, (106) 1983
  cranium, in children, roentgenoscopy in, (132) 971
  due to fragilitas ossium, *1995
  elbow joint, treatment, (63) 1790
  emergency immobilization of, (46) 1701
  femur, compound, treatment of, (20) 2262
  femur, head of, (29) 1509
  femur, Hodgen's splint in, (134) 431
  femur, in field, treatment of, (46) 1985
  femur, internal condyle of, wire nails for, (74) 353
  femur, into tuberculous knee-joint, *1027
  femur, intracapsular, of neck of, bloodless treatment of, (70) 1060
  femur neck, extension treatment in elderly subjects, (120) 1608
  femur neck, treatment of, analysis of, (32) 1605
  femur, sliding splint of plaster of Paris for, (124) 510
  femur, subtrochanteric, (57) 1605
  gunshot, dressing for, (61) 1430
  gunshot, immobilization of, (53) 1701
  gunshot, of limbs, (107) 359
  gunshot, problems of, (8) 2261
  hastening repair after, new method of, (83) 2074
  hip, (103) 1234
  hip, Whitman's method for, (42) 1981
  humerus, and dislocation, (73) 1060
  humerus, extension apparatus for, (38) 1985
  humerus, external condyle, treatment by removing loose fragment, (168) 361
  humerus, peculiar healing, in 2 children, (166) 361
  humerus, surgical neck of, (114) 276
  humerus, surgical neck of, abduction and fixation of elbow in, (118) 2075
  humerus, upper end, analyses of 393 cases, (87) 708
  humerus, upper end of, Hacker's splint for, (118) 198
  intra-uterine, fibrous ostitis with, (68) 898
  jaws, (79) 197
  joints, (44) 197
  joints, in neighborhood of, (114) 892, *2122
  joints, in neighborhood of, plating for, 3 cases of, (2) 431
  leg, pillow extension bandage for, (39) 1985
  legal responsibilities of surgeon in, (133) 63
  lumbar vertebrae, transverse process, (54) 1511
  massage in after-care of wounds and, (51) 1701
  medullary bone splints in, (148) 276
  open method in reduction of, (87) 1056
  open treatment of, woven catgut splints for, (89) 1057
  operative reduction of old dislocation of elbow with or without, (77) 711
  operative treatment of, simple, conservatism in, (85) 708, (142) 971
  operative treatment, plating, (19) 432
  patella, arthrotomies for, review of ninety-nine, (40) 350
  patella, diagnosis and treatment, (81) 1887, (75) 2074
  patella, subcutaneous, treatment of, (79) 1432
  patella, symptom of, (144) 206
  pelvis, (117) 198
  pelvis and sacro-iliac joint separation, (72) 353
  pelvis, rupture of urethra following, (101) 1234
  pelvis, with rupture of bladder, (108) 1057
  Pott's, failure to invert foot in treatment of, 1599—Ml
  Pott's, with complications, (114) 511
  radius, lower end, in children, (92) 282
  roentgenotherapy of, (238) 363
  semilunar and scaphoid bones, secondary changes after, (63) 1886
  semilunar bone, isolated, (55) 1143
  skull, (84) 197, (158) 972
  skull, base of, deafness following, (73) 357
  skull, base of, recovery, (146) 1328
  skull, countercoup, (31) 273
  sternum, (68) 1144
  talus, (74) 1060
  temporal bone, left, (80) 708
  thread and wire extension from skin in paralysis and, (104) 615
  tibia and fibula, compound, bone transplantation in, (158) 1609
  treatment, modern, (89) 62
  ununited, (41) 60
  vertebrae, diagnosis and prognosis, (89) 69
  wrist, (107) 1990
FRAGILITAS OSSIUM, *1996
FRAMBESIA, intramuscular and intravenous injections of neosalvarsan and salvarsan in, (23) 894
  salvarsan in, (14) 513
  syphilis and unity of, (120) 1983
FRANCE, American assistance for, 1591
  Red Cross work in, 1774
FRANKFORT University, 593, 1865
FREEZING, death from, signs of, 2050—E
  injuries from, (110) 1705
FRENCH Anti-Opium League, 415
  birth-rate, latest diminution in, 255
  bureau of chemical products, 1775
  conference on public assistance, 6th, 415
  infantry bullet, (59) 1430
  medical service, 1405
  physicians, association of, 496
  sanitary league, appeal of, 2242

FREY'S method of anesthetizing larynx, (18) 199
FRIEDMANN and Pfannenstill technics in tuberculous laryngitis, (103) 70
treatment of lupus, unfavorable experience with 7 cases, (56) 1238
treatment of surgical tuberculosis, (105) 70
tuberculosis remedy, 45, (98) 70, (99) 204, (151) 284, (86) 358, (136) 360, (149) 361, (93) 435, (58) 515, (92) 517, (63) 897, (41) 1238, (47) 1239
tuberculosis remedy, experiments on guinea-pigs, (113) 204
tuberculosis remedy, government report on, 1673—E, 1690—ab
tuberculosis remedy, mastitis following, (126) 436
tuberculosis remedy, official opinion on, 177
tuberculosis remedy, transmission of tuberculosis from guinea-pig to guinea-pig after injection of, (62) 516
vaccine, report of patients who received it year ago, (84) 61
FRIGHT, acute myelitis with perirectal abscess after severe, *1546
as element in damages, 1498—Ml
FROEHLICH'S syndrome, *148
FUCHSIN, acid, convulsant action of, in cardiectomized frogs after removal of anterior lymph hearts, (81) 1425
use of decolorized acid, as acid indicator in carbohydrate fermentation tests, (41) 804
FUCHS-LONTZ and Russo methylene blue reaction in urine not specific for any disease, (108) 615
FULGURATION in cancer, de Keating-Hart's method of thermoradiotherapy and, (22) 1700
FUMIGATION, formaldehyd, (16) 2159
schoolhouses, 1597
FUNCTION and anatomic structure, *521
FUNGUS in pus in chronic upper jaw process, undescribed, (80) 1797
FURUNCULOSIS, sulphuric acid in pyorrhea alveolaris and, (88) 275
vaccine therapy in, (133) 437
FUSIFORM aneurysm of descending aorta, functional recovery after anti-syphilitic treatment, (90) 510
FUSION faculty, (117) 1882
faculty, neurology of, (60) 1055

G

GAIT of man and animals, application of laws of velocity to, (61) 2078
GALACTOSURIA, alimentary, in exophthalmic goiter, (100) 615
GALL-BLADDER, anastomosis of, to stomach, 1320—ab, (19) 2070
anoci-association and operations on stomach and, *1335
calculus after typhoid, rapid development of, (119) 1706
calculus and diabetes, frequent coincidence of, (49) 66
calculus, early operation, plea for, based on autopsy records, (22) 195
calculus ejected through mouth, (36) 2160
calculus, frequency of, (27) [illegible]
calculus from surgical standpoint, (6) 426
calculus, ileus from, (27) 1141
calculus, intestinal [illegible] caused by, (30) 555
calculus, modern views on, 122—ab
calculus operations, obliteration of space below liver with, (4) [illegible]
calculus, recurrence of, after cholecystectomy, (101) 1064
calculus, spa treatment of, (57) 282
calculus, surgery of, (55) 1051
calculus surgery, paravertebral anesthesia in, (92) 1333
calculus with anachlorhydria, (52) 433
Disease: See also Bile Tract
disease, direct examination of duodenum contents in diagnosis of pancreas affections and, (4) 1314
GALL-BLADDER disease, newer concepts of, (139) 1235
infected, free from gall-stones, removal of, (77) 1797
infections, (34) 1696
infections, surgical treatment, 1878—ab
lesions of bile tract and, in cholera, (2) 1983
roentgenoscopy of, (35) 2160
rupture of, subcutaneous traumatic, (97) 1982
strictures, (145) 1608
surgery and prognosis of diseases of ducts and, (131) 1608
surgery, common errors in, *832
typhoid infection of, in rabbit, experimental, (22) 2259
GALL-DUCTS: See Bile-Ducts
GALL-STONES: See Cholelithiasis; Gall-Bladder Calculus
GAME, stock and citizens, comparison of appropriation by Illinois for, 1959—E
GAMMA RAYS and roentgenotherapy, comparative dosage of, (48) 2264
artificially produced, (80) 1331
GANGLION, gasserian, alternating hemiplegia following injection of alcohol into, (118) 1244
of ring finger, (18) 1329
GANGOSA in Guam, etiology of, (97) 1057
GANGRENE, acute emphysematous, in wounds in war, (11) 2261
appendicitis with coprolith, abscess, septic peritonitis, intestine obstruction and, (17) 894
arteriovenous anastomosis for threatened, (125) 63
arteriovenous anastomosis of femoral vessels for impending, (12) 803
arteriovenous anastomosis of upper extremities for impending, (53) 1325
electric light for, (48) 1701
gas, 2241, (2) 2310
gas, and phlegmons, (30) 2311
gas, germ of, reported discovery of, 2249—C
hospital, causes and treatment, (42) 1986
in war, (2) 1139
kidney, total, from phlegmonous perinephritis, (133) 72
lung, and acute abscess, (44) [illegible]
military wounds, treatment of, 1967
tonsils, (86) 509
wounds, treatment of, 2145
GANJA as cause of insanity and crime in Bengal, (25) [illegible]
GARBAGE: See also Waste
GARBAGE reduction plant, authorized, not a public nuisance, 1599—Ml
GAS formation by coliform organisms, (24) 1425
formation of, in open abdominal cavity, (31) [illegible]
from silage, fatal effects of, on men working in silo, [illegible]
pains after appendectomy, relief of, (167) [illegible]
production by gas-forming bacteria, method of estimating amount of, (41) [illegible]
GASKELL, W. E., death of, [illegible]—E
GASOLINE in Berlin, [illegible]
smoke, effect of, [illegible]
GASSERIAN ganglion, alternating hemiplegia following injection of alcohol into, (118) 1244
GASTRECTASIS, (16) [illegible]
GASTRECTOMY, subtotal, method of, (3) 551
GASTRIC JUICE: See Stomach Secretion
GASTRITIS: See also Dyspepsia
GASTRITIS, catarrhal, chronic, (77) [illegible]
hemorrhagic, (27) [illegible]
GASTRODUODENAL tube, modified, (123) 571
GASTRO-ENTEROLOGY, (12) [illegible]
broader conceptions in, (7) [illegible]
GASTRO-ENTEROSTOMY, advantages of closing of pylorus with [illegible], 14 cases, (11) [illegible]
opening in permeable pylorus, function of, (27) 551
opening with permeable pylorus, (4) [illegible]
[illegible]
[illegible]
GASTRO-ENTEROSTOMY, stitch ulcers after, 269—ab
technic of, points of interest in, (19) 2310
unfavorable results after, (32) 1135
volvulus of jejuno-ileum with anterior, (67) 606
GASTROGEN tablets refused recognition by Council, 2148—P
GASTRO-INTESTINAL TRACT and joint disturbance, 1877—ab
bacteria of, in healthy children, 952—E
diseases and feeding of infants, review of literature on, 1913-1914, (3) 426
diseases and severe anemia, (5) 1323
diseases, diagnostic methods, 190—ab
diseases from kidney calculi, (31) 1059
diseases, heat and morbidity and mortality of infants from, *1371
diseases in infants, (76) 68
diseases, newer teachings concerning, (102) 1139, (124) 1327, (106) 1425
diseases, recurring indicanuria in diagnosis of, (84) 357
diseases, Roentgen ray and bismuth meal method in diagnosis of, (16) 894
diseases, roentgenoscopy in, 1419—ab
diseases, volatile fatty acids in intestine of normal infants and those with, and relation to disturbance in metabolism, (227) 363
hemorrhage, fatal, 3 cases of, (7) 194
hemorrhage, postoperative, (101) 2081
in pellagra, treatment of, (122) 198, (30) 1324
lesions, operative indications roentgenologist present at operations, 1419—ab
lymphocytosis sign of [illegible] disturbances in [illegible] diseases of, *1124
obstruction, [illegible] (71) [illegible]
of infants, climate and [illegible] in, [illegible] 1535
roentgenology of, (77) [illegible]
roentgenoscopy of, [illegible]
studies, *11, [illegible]
urinary findings in [illegible] conditions of, (45) [illegible]
GASTROSCOPY, [illegible]
GASTROSTOMY for stomach [illegible], [illegible]
GAUCHER'S DISEASE, case of, 122—ab
in boy of 10, splenectomy in, (22) [illegible]
GAYLORD Farm Tuberculosis Sanatorium, [illegible] years' work at, (2) [illegible]
GEL filtration of [illegible] and other proteins, [illegible]
GELATIN capsules treated with formaldehyd, (4) 1506
in [illegible], dosage of, [illegible]
[illegible] after operation on nose, [illegible] 1534
GENERAL medical news, 174, 253, 331, 412, 492, 573, 655, 732, 877, 956, 1041, 1122, 1215, 1303, 1404, 1533, 1631, 1774, 1855, 1951, 2052, 2142
GENETICS, problems in, 270—ab, [illegible] 509
GENITALIA, [illegible] of appendix and, (37) 63
displacement of, [illegible] 510
disturbances, [illegible] in hypophysis, [illegible] 2254
dystrophy, infantilism and fat deposits with tumor of hypophysis, (72) 252
hemorrhage in newborn [illegible], (77) 2157
lesions of urinary tract [illegible] disease of female, [illegible]—ab, [illegible]
[illegible]
premature development of external, due to hypernephroma of adrenal cortex, *2225
[illegible], operative treatment, [illegible]
tuberculosis of, in little girls, [illegible]
GENITALIA, tuberculosis of, in male, results of, 2274
GENITO-URINARY TRACT, amebic infection of, (22) 1324
arthritis and lesions of, (48) 352
diseases, diagnosis and relief of, (30) 1055
disturbances in functioning, with disease of posterior urethra, (124) 71
infections originating in kidneys, (78) 708
purpura rheumatica with lesions of, (97) 2163
surgery, general anesthesia in, (101) 1881
surgery, local anesthesia in, (102) 1881
surgery, perineal board for perineal prostatectomies, rectal and, *1476
tuberculosis, tuberculin in, (60) 275
GENIUS, is it a matter of chemistry, (62) 1982
GENTIAN VIOLET, effect of, on bacillus tetani, tetanus toxin and laboratory animals, (94) 2163
effect of, on protozoa and tissues growing in vitro, (20) 2259
influence of, on tissue-cultures, 253—ab
GEORGIA medical news, 874, [illegible], 1585, 1678, 1852, 2140, 2235
state board June report, 2153
GEOTROPISM of arenicola larvae, reversibility of, by salts, [illegible] 1503
GERIATRICS, importance of, [illegible]—C
GERMAN army, alcohol forbidden in, 1215
army medical corps, number of [illegible], [illegible]
army, medical officers in, 2144
army medical staff, [illegible]
Central Committee for campaign against tuberculosis, [illegible]
Council on Pharmacy and Chemistry, [illegible]
Journal for Medical Progress, [illegible]
medical [illegible], [illegible]
medical officers at front, [illegible]
medical officers, [illegible], 2144
patents and trademarks in England, 1212
physicians, memorial to, 1213
[illegible], climate of, [illegible], 516
surgeons decorated, 1555
surgery, (77) [illegible]
Surgical Association, transactions of [illegible] annual meeting, (61) 1144
universities, exclusion of alien students from, 1491
wounded, transportation of, 1555
GERMANY, exportation of drugs and medical supplies forbidden, 529
food in prisons of, (120) [illegible]
organized [illegible] in, annual meeting of, 325
prophylaxis of epidemics in, 1310
[illegible] medical officers in, 732—ab
war news in, 2144
GIANTS, little dwarfs and, (4) 1231
GIBSON chart in diagnosis and prognosis of acute intra-abdominal affections, (30) 1075
GINSENG regarded as panacea by Chinese, 1425—E
GLANDERS, chronic in man, (161) 251
GLANDS, Ductless: See Ductless Glands
GLANDS of internal secretion, (85) 1425
of internal secretion and status lymphaticus and status hypoplasticus, (70) 2074
of internal secretion, clinical manifestations of disease of, in neurologic patients, (12) 1232
of internal secretion, psychic manifestations of disease of, (11) 1279
GLASGOW Royal Infirmary medical electric department in, (29) [illegible]
GLASSES: See Spectacles
GLAUCOMA, chronic, diagnosis of, (72) 1797

GLAUCOMA diagnosis and treatment. 1602—ab
  diagnosis, difficult under certain circumstances, (151) 72
  Elliot sclerocorneal trephining for, *215, (24) 1610, (35) 2072
  Elliot trephining operation for, late infection following, *225, (4) 1139
  *hereditary, *209*
  Lagrange sclerectomy and Elliot trephine operation for, (103) 608
  miotics in chronic, value of, *219
  prophylaxis, (159) 72
  surgical treatment of, (21) 809, (31) 1696
  venous stasis as cause of certain complications of operations for, (202) 440
GLENARD'S DISEASE: See Splanchnoptosis
GLIOSARCOMA of retina with recurrence in maxillary antrum, (115) 276
GLOBULIN, Wassermann and cobra reactions in syphilis, (79) 1326
GLOSSITIS, acute parenchymatous, *2020
GLOVES and socks, advantages of double, in cold weather, (44) 2077
GLOVES, Rubber: See Rubber Gloves
GLUCONEOGENESIS, chemistry of, (63) 60
GLUCOSE, formation of, from dioxyacetone in diabetic organism, (40) 606
  from citric acid in diabetes mellitus and phlorhizin glycosuria, (68) 61
  in urine, test to estimate percentage of, (7) 431, (11) 1139
  or lactose in urine, 1130
  substitute for normal salt solution, *307
  velocity of formation and elimination of, by diabetic animals, (63) 60
GLUZINSKI'S test in gastric ulcer, (25) 350
GLYCERIN, ureter calculus expelled after injection of, (42) 66
GLYCOGEN content of liver and sugar content of blood, influence *of thyreoparathyroidectomy on,* (64) 61
GLYCOPROTEINS, antigenic properties of, (89) 2162
GLYCOSURIA, alimentary, and diabetes mellitus, differentiation of, (9) 194
  and diabetes in railroad employees, (118) 2170
  and hyperglycemia, new principles concerning mechanism of, (60) 61
  and hypophysis cerebri, (6) 1323
  clinical study of, (7) 2261
  induced in dog by intravenous injection of cerebrospinal fluid *from acromegaly patient,* (67) 434
  nervous or emotional, 485—E
GLYCO-THYMOLINE not a harmless fraud, 1304—E, 1312—P
GLYCYL-TRYPTOPHAN reaction in *meningitis,* (52) 1423
GLYOXALS, formation of amino- and hydroxy-acids from, in animal organism, (61) 60
GOITER: See also Hyperthyroidism; Thymus; Thyroid
GOITER, cystic, disturbances and dangers from, (69) 711
  differential diagnosis, (70) 2161
  endemic, (73) 812
  endemic and exophthalmic, causation, prevention and cure of, (9) 609
  endemic, etiology of, experimental researches on, (6) 1984
  etiology of, (69) 68
  etiology *of cretinism,* deafmutism and, (110) 1889
  exophthalmic, (101) 1983
  exophthalmic, acute, simulating acute obstruction, (34) 1700
  exophthalmic, alimentary galactosuria in, (100) 615
  exophthalmic, and iodin, (80) 712
  exophthalmic and simple, thymus resection for, (29) 1237
  exophthalmic, and tabes, occurrence and interrelation of, (17) 195
  exophthalmic, as clinical manifestation of hereditary syphilis, *1951
  exophthalmic, lesions of thyroid with, (44) 896
GOITER, exophthalmic, medical treatment, (70) 197
  exophthalmic, *mental symptoms associated with,* (27) 355
  exophthalmic, pathologic anatomy and symptoms of, (44) 1060
  exophthalmic, *roentgenotherapy of,* (64) 2168, (5) 2261
  exophthalmic, roentgenotherapy of thymus in, (111) 2081
  exophthalmic, serum of thyroidectomized animals of no benefit in, (196) 286
  exophthalmic, serum of thyroidectomized goats in, (101) 519
  exophthalmic, severe, recovery without operation, rest or medication, *1950
  exophthalmic, *surgical treatment* of, (34) 196, (42) 199, (113) 276, (87) 614, (76) 1797, (39) 1885
  exophthalmic, thymus in, (71) 812, (30) 889, (53) 2078
  exophthalmic, treatment of, (126) 1890
  exophthalmic, with acute infectious thyroiditis, symptoms of, (104) 518
  experimentally produced, pathogenesis of, (5) 1984
  focal infection as cause of, *899
  metastasis of goiter tissue, (37) 1330
  operations, wire tourniquet in, (119) 511
  parenchymatous, tachycardia with, (5) 512
  pathology of, (71) 2161
  present status of, (81) 275
  prevalence in Northwest, (110) 430
  simple, compensatory hypertrophy of, symptoms and relation to other clinical types, (42) 428
  stenosis of trachea with, followed by emphysema, (73) 613
  surgical risks, selection and preparation of, (72) 2161
  surgical treatment, 1499—ab, (28) 1700, (18) 1878 (73) 2161
  symposium on, 1977—ab
  treatment of hyperthyroidism and, (93) 708
  types and symptoms of hyperthyroidism and, (110) 276
GOLD, colloidal, reagent in serodiagnosis, (117) 204
  colloidal, reaction, Lange's, in cerebrospinal fluid, (120) 205, (7) 426, (80) 1881, (101) 2081 2138—E
  sol test, Lange, in general paralysis, (81) 1881
GOLDSCHEIDER'S method of percussing, displacement of strong stroke by fighter, *320
GONOCOCCUS, catarrh of uterus cervix induced by gonorrheal threads free from, (44) 1510
  growth of staphylococcus albus and, from urethra in plate culture, (25) 1504
  on ordinary media, studies of, (23) 1985
  vaccine, 1204, 1577
  vaccine, gonorrheal keratitis after reinjection of, (137) 437
GONORRHEA, acute, phlebitis of penis simulating edema induratum complicating, (58) 806
  ankylosis of knee due to, operative treatment of, (27) 1059
  arthritis and tenosynovitis due to, (85) 892
  arthritis due to, (51) 976, (48) 1885
  arthritis due to, 200 cases without complication, (56) 1325
  cervicitis and endometritis due to, pathology and treatment, (2) 349
  epididymitis due to, operative treatment of, (51) 811
  eruptions with, (56) 1510
  excrescences in, (96) 614
  in girl of 2½, generalized, recovery. under immobilization of joints, (57) 434
  in male, (63) 1326
  irrigation treatment of acute, in male, (3) 1507
  keratitis after reinjection of gonococcus vaccine, (137) 437
  recognition of different periods of, *by microscope,* (135) 512
  sclerosis of corpus callosum originating from, (90) 1888
  serodiagnosis, (97) 708, (25) 804, (120) 971
  serodiagnosis, employing specific and non-specific antigens, (84) 1057
GONORRHEA, stomatitis due to, (99) 1607
  treatment of acute, (8) 1328, (50) 1510
  treatment of fresh, (96) 713
  treatment of, in women, technic for, (197) 440
  treatment of, local, (119) 2075
  treatment of, should general practitioner take part in, (113) 198
  vaccine, (99) 608
  vaccine in, Nicolle and Blaizot's, (5) 2164
  vaccine therapy of, (38) 66, (111) 282, (70) 1430, (60) 1613, (77) 1703, (28) 2262
GORGAS, Surgeon-General, medal presented by A. M. A. to, 114
GOUT, *atophan and radium in arthritis and,* *945
  atypical, (58) 613
  atypical, and allied metabolic disturbances, (70) 812
  atypical, relation to asthma and lung tuberculosis, (53) 1239
GRAFTING: *See also* Transplantation
GRAFTING, bone, 190—ab
  bone, autoplastic, (156) 1609
  bone in cranial defects, (160) 1609
  bone, original surgical uses of, (141) 276
  monkey's thyroid for myxedema in boy of 14, (30) 810
  nerve, for paralysis of larynx, (104) 1888
  skin, (74) 1790
  skin, anaphylaxis following, for burns. *775
  skin, ectropion of eyelids corrected by, (115) 1882
  skin, preparation of dry bony areas for, (46) 1422
  skin, small deep, *985
GRAM'S method, staining of yeasts by, (47) 707
GRANULOMA annulare, 5 cases, *230
  coccidioidal, and coccidioides immitis, (38) 706
  fungoides, (13) 1604
  infectious, uterine sarcoma secondary to, (66) 67
  malignant, (161) 206
  or myxosarcoma of hand, (20) 1985
GRATTAGE in treatment of trachoma (7) 603
GRAVES' DISEASE: See Goiter, Exophthalmic
GREEN'S treatment and buttermilk in 3 cases of grave secondary anemia, (47) 889
GROWTH, influence on, of corn or wheat rations, (15) 2259
  suppression of, (66) 61
  thymus and thyroid in relation to, 34—E
  value of proteins of cereal grains and milk for, in pig, (12) 2259
GUIAC TEST: See Test, Guiac
GUMMA of anterior urethra, (120) 2075
  of larynx, tracheotomy necessary, (19) 199
  of myocardium, (139) 2170
  of trachea revealed in tracheoscopy, stretching stenosis for, (87) 1145
  of vulva and vagina, (71) 1240
GUMS, diphtheria of, in 2 infants, (109) 713
  hypertrophy of, and reduplication *of lip,* (16) 1700
  sore, and sore tongue, symptoms *of pernicious anemia,* (81) 812
  tuberculosis of mouth and, (96) 436
GYNECOLOGIST, surgical training for, importance of, (63) 1060
GYNECOLOGY, Abderhalden serodiagnosis of pregnancy in obstetrics and, value of, *371
  and urology, relation to general surgery, (69) 2073
  anesthesia, general, (58) 811
  anesthesia, spinal, (148) 1608
  anesthesia, spinal and local, in obstetrics and, (134) 1608
  auto-infection in, (135) 283
  blood in obstetrics and, (171) 285
  blood-platelets, preparation of, to arrest *hemorrhage* in, (102) 1243
  constitutional states in relation to gynecologic conditions, (82) 607
  diathermia in, (74) 1887
  in tropical Africa, (82) 1888
  loss of blood at operations, im*portance for prognosis,* (166) 285
  points of practical importance in, *815
GYNECOLOGY, practice of, (184) 361
  psychiatry and, (44) 2263
  referred pain in, 1694—ab
  roentgenology in, (17) 1610
  roentgenotherapy and radio-active chemicals in, (90) 429
  roentgenotherapy in abdominal surgery and, *816
  serodiagnosis in obstetrics and, (187) 362
  spa treatment and. (30) 976
  thyroid degeneration in relation to obstetrics and, (12) 1694
  turpentine in obstetrics and, (189) 362

H

HABIT as aid to progress, 2159—ab
  as pathologic factor, (14) 894, 2266—ab
  as physiologic factor, 1296—ab
  forming drugs, (107) 275, (107) 1983
  forming drugs and alcoholism among physicians in Alabama, (142) 431
  forming drugs and crime, (27) 427
  forming drugs, Harrison Bill for control of, becomes a law, 2234—E, 2306—ab
  forming drugs in Tennessee, (98) 708
HAIR balls, (134) 1234, (47) 1697
  singeing of, 1958—E
HALDANE and Douglas method for calculating dead space in breathing, (56) 428
HAMBURG institute for marine and tropical diseases, new, (154) 360
HAMMURABI, code of, 1390—ab
HAND, amputation of, (23) 967
  cancer on, after battle wound, (45) 1330
  deformed and contracted in multiple arthritis, operative treatment of, (104) 1983
  diseases of, in rose-gatherers of the Riviera, (42) 515
  enchondroma of, bone-plastic operation for, (69) 1060
  granuloma or myxosarcoma of, (20) 1985
  infections of, acute suppurative spreading, and of fingers, surgical treatment, (90) 608
  localization of function in spinal cord for muscles of leg, diapragm and, (77) 1144
  lotions and chapped hands, 2152
  phlegmons on, treatment, (35) 976
  semilunar bone of, fracture of scaphoid and, secondary changes after, (63) 1886
  severed, heals in place with good functioning, (135) 437
  sterilization of, (50) 1238
  sterilization of, iodin for, (89) 1063
  tuberculosis, sunlight plus moun*tain climate for, (40) 977*
HANGING, resuscitation after, psychic changes after, (76) 2168
HANDWRITING in chorea, (124) 283
HARELIP, double, technic for correction, (60) 1144
  management of cleft-palate and, (73) 1233
  operations, adhesive plaster dress*ing for, (100) 1243*
  operations, improved technic for, (156) 438
  operation on cleft-palate and, (15) 1329
  operation, plaster bandage in, improved technic, (128) 71
HARRISON Bill becomes a law, 2234—E, 2306—ab
HARVEY'S precepts for lecturing, 1550—ab
HAY-FEVER, (132) 1234
  active immunization in, (64) 890
  anaphylactic skin reactions in, from pollen of plants, (24) 1880
  blood alterations in, (3) 64
  hectine in, 502
  prophylaxis and cure with pollen toxin, *141
  toxin, warning as to use of, 502—C
  vaccines and serums in, 340
HEAD injuries and syphilis, crime due to, (28) 427
  injuries, roentgenoscopy for, (12) 704
  injuries, treatment of, by drainage through subtemporal approach, *863
  roentgenoscopy of obscure lesions, (12) 1879
HEADACHES, (49) 2073
  cardiac, (81) 607

HEADACHES, causes and treatment, (10) 1609
middle turbinate as factor in, (172) 973
nasal origin of, (132) 1608
HEALTH activity, work in Ohio by insurance company, (155) 972
as social ideal, 1750—ab
boards of, local, uniformity in annual reports, (8) 1420
conservation of, (56) 1697
county, organization, in United States, *1739
department, local, (121) 198
exhibition, southern, 1215
in industry and war, value of, 950—E
in navy, 2139—E
industrial, 1034—E
insurance and medical profession, 1687—C
measures, practical, what are they? (125) 198
movement, characteristics of, 1545—ab
mustering into army men who have regained, after being invalided out, 1217
National Department: See also Owen Bill
national department of, bill abandoned, 1303—E
national department of, Gorgas for head of, 1414—ab
obligations of, 458—ab
of army at front, 1218
of government employees in Philippines, 333
Office, Public, International, at Constantinople, dissolution of, 2144
officers and tuberculosis in rural communities, (61) 1506
officers, education of, *1617
officers in small towns, difficulties of, (147) 1699
officers, medical, and social worker, (121) 1139
officers of Nova Scotia, meeting of, 1124
officers, security of tenure, 176
officers, whole-time, need of, (99) 970
organization of department of, along welfare lines, (94) 2074
planning for, (84) 1138
plumbing and, 784—E
preservation of, public school courses for adults in Rochester, N. Y., 1211—C
problems of Kentucky, (66) 429
problems, state, (112) 1138
public, 2159—ab, (29) 2260
public, administration, (58) 1790
public, administration in small community, cooperation in, 1207—E
public, and biologic therapy, (16) 1420
public, and general physician, (144) 1699, (30) 1880
public, and good roads, 2224—ab
public, and personal hygiene, 2022—ab
public, and public hospitals, relation between, (90) 358
public, and race degeneracy, (4) 1420
public, and sanitation in Vera Cruz, 256
public, and single tax, relation of, (13) 350
public, and tuberculosis, (83) 1791
public, centralization of administration, (18) 2310
public, crusade, (11) 1329
public, education, (65) 1137, (107) 1138
public, education work of cities and states in, (12) 1420
public, graduate courses in, 675
public, in Indiana, 1119—E
public, in Iowa cities, 170—E
public, in New York, 1302—E
public, in Porto Rico, 1124
public, in Saskatchewan, (125) 276
public, interrelation of physician, citizen and state to, (99) 510
public, legislative campaign for, (84) 1697
public, Minnesota school of, 682
public, present-day activities, *1713
public, proposed, board for Berlin, 415
public, recent work in, (30) 1329
public, service in Egypt, (155) 438
public, service, jubilee of, in Switzerland, 1309
public, town planning and its influence on, (134) 276
public, work as a career, *653
HEALTH sermons in Richmond, 1865
services in American colleges, *1926
state problems of, (68) 806
supervision of schoolchildren in Ohio, plan for system, (104) 1234
tuberculosis, diagnosis and prevention, as factors in public health work, (56) 1055
winter sports and, 1301—E
work for sake of, 1118—E
work, international public, in Jerusalem, 593
HEARING capacity of schoolchildren, (121) 520
conservation of, (50) 806, (20) 1135, (53) 1697
test, apparatus for quantitative, (109) 1698
tests, practical differential, (75) 61
HEART, accident cause of death notwithstanding organic weakness of, 886—Ml
acidosis and dyspnea in diseases of kidney and, (43) 968
action, absolutely irregular, paroxysmal form of, (17) 974
action, weak, acute, treatment, (70) 978
adhesive pericarditis and disappearance of normal lateral vertical change of position in, on changing from lying to standing position, (86) 713
aortic insufficiency, double arterial wave with, (92) 2169
aortic valves, abnormal number of, (115) 1889
arhythmias, 2159—ab
arteriosclerosis of, prognosis with, (88) 517
auricular fibrillation, diagnosis and treatment, 271—ab
auricular flutter in rheumatic endocarditis, (86) 353
auricular flutter, left, (108) 518
baths, influence of various forms of, on function of, (80) 614
beat, clinical irregularities of, (131) 2164
beat, contraction of muscles synchronous with, (72) 1988
beat, rate of, and temperature, in amblystoma embryos, (12) 1503
block, acute rheumatic, case of, (9) 278
block, auscultation findings with, (35) 1060
block, auriculoventricular, complete, (12) 1236
block, complete, post-mortem findings, (18) 58
block, digitalis cause of, (89) 2074
block, Dr. Thomas Spens first describer of, (16) 432
block from gunshot wound of heart, (65) 1886
block, functional, in pneumonia, *577
block in acute rheumatic carditis, (7) 2310
block, 3 cases of, (43) 274
calcification and ossification of walls of, 1977—ab
camphor and action of, experiments on, (95) 970
camphor and lack of oxygen, action of, on isolated mammalian, (80) 1425
carbonated baths in weak, (48) 1510
congenital defects, (100) 518
congenital disease of, (63) 202
convulsant action of acid fuchsin in cardiectomized frogs after removal of anterior lymph hearts, (81) 1425
convulsant action of drugs in cardiectomized frogs, and influence of lymph hearts on, (82) 1425
digitalis in chronic diseases of, 270—ab, (129) 971
dilatation of, and pericarditis with effusion, new sign in differential diagnosis, (115) 1426
dilated, murmurs in, and explanation, (6) 278
disease, acute, threatening conditions in, (72) 1241
disease, advanced, bed for, (71) 281
disease, applied physical chemistry in, (82) 1607
disease, congenital, diagnosis and prognosis of, (1) 1134
disease, diagnosis and treatment, common errors in, (7) 278
disease, diagnosis, newer methods of, (31) 967
HEART disease, disadvantages of reduction of flesh in, 1684
disease, exercise in, biologic effect, (136) 616
disease, 4 common types, *1461
disease of kidney and, (87) 61, (149) 1328, *1463
disease, obesity with, accidents during treatment of, nature and prevention of, (32) 1794
disease, parenteral administration of sugar as stimulant in, 245—E
disease, precordial pain and, (55) 890
disease, prognosis of, and life insurance, (54) 1506
disease, treatment of, (71) 2074
dissection of, to avoid injury to node and Bundle of His, technic for, (50) 896
drop, (137) 971
electrocardiograph in study of, (75) 1790
epinephrin and pituitary extract in children for acute infectious weakness of, (147) 284
examination of, through esophagus, (115) 1244
exercise and, 326—E
fatty changes in liver, kidney and, (27) 1985
fibrillation and chloroform anesthesia, (11) 1427
function, pathology of, (31) 1700
graphic studies in cardiac arhythmia-ectopic systole, (90) 2074
gunshot wounds, (44) 1142, (89) 1333
gunshot wounds, distant results of, suture of, (39) 350
hemorrhage of liver and, muscle flaps to arrest, (74) 357
hypertrophy, (53) 889
hypertrophy of, latent, in nephritis in children, (23) 1695
hypochondriacs, (103) 275
impulse, origin and propagation [illegible] 8
in [illegible] ex-
in [illegible]
in diphtheria, clinical and pathological study of, (38) 1700
in pneumonia, *981
in pneumonia, prophylaxis and treatment, (142) 437
in syphilis, treatment of, *1456
indigestion forerunner of diseases of kidney and, (111) 2075
insufficiency, avoidable errors in diagnosis of, 1692—ab
insufficiency, diagnosis by changes in distribution of blood during test work, (93) 69
iodids, action of, on blood-vessels and, 1767—E
Knowlton-Starling isolated heart-lung preparation for testing action of drugs, (96) 970
liver with disease of, (170) 439
mechanical work of, analysis of, (90) 713
mitral insufficiency, unusual location of murmur with, (18) 1059
muscle and spasmophilia, in children, (104) 814
muscle nourished by sugar solution, (118) 282
needle found in physician's, 494
orifices, experimental operations on, (6) 802
overtaxation of, in field, (36) 1612
physiology, problems in, (8) 609, (39) 709
pituitary extract, action of, on acute failure and uncompensated heart lesions, 271—ab
pneumonia and disturbances of, (89) 713
potassium, sodium iodids, and iodin ion, action of, on blood-vessels and, (36) 1325
pressure pump, not suction pump, (64) 977
presystolic sound, normal, (21) 1695
pulmonary insufficiency, relative, (2) 1601
pulmonary orifice of, patching and section of, (50) 423
respiration in disease of, (32) 967, (77) 1790
respiration reaction to action of, (130) 283
restriction of fluids in edema traceable to disease of kidneys or, (63) 2167
roentgenoscopic outline of, clinical importance of, (122) [illegible]
roentgenoscopy of, sources of error in, (134) [illegible]
HEART, smoking, influence of, on vessels and, (105) 518
sounds, fetal, in placenta praevia, study of, 1978—ab
sounds in region of sternum, normal peculiarities of, (30) 1695
stab wound, sutured, (172) 439
strophanthin, action of, and influence of temperature, (77) 1425
surgery of lung, trachea and, experimental, *1338
suturing of, (126) 616, (22) 1610
syphilis, (6) 1978
systolic discharge of human, 2235—E
valvular disease and tuberculosis of lungs, (13) 194
valvular disease in infants and children, (105) 429
HEAT in balneology, (99) 713
in cancer of uterus, (16) 808, (140) 1608
infant mortality from gastro-intestinal diseases and, *1371
infants and, 1204—T
instrument for measuring production of, *827
muscular work from standpoint of energy and, (128) 1890
production in smooth muscle, (20) 1605
prostration, treatment of sunstroke and, (111) 1327
radiation, colored lenses to cut down, and neutralize ultraviolet and infra-red rays, (97) 1233
vital energy and, (39) 2166
HEATH, results of 7 mastoid cases operated on by, (15) 273
HECHT-WEINBERG reaction as control over Wassermann reaction, *240, 263
HECTINE in hay-fever, 502
HEEL, exostosis on elbow or, (31) 1237
wire extension from, (101) 1243
HEISER returned to Orient, 1404
HELIOTHERAPY: See also Sunlight Treatment
HELIOTHERAPY, artificial, (48) 1986
artificial, for lupus and bone and joint tuberculosis, (131) 2170
HELMINTHS and appendicitis, (48) 1239
[illegible] of cattle in Brazil,
in stomach [illegible] cows, [illegible] (187) [illegible] (18) 1334
HELMINTHIASIS, [illegible] of [illegible] nines, (137)
intestinal, in Philippines, peculiarities [illegible] and [illegible] 1698
HEMANGIOMA of [illegible] tongue, extensive, [illegible] excision, (72) [illegible]
HEMATEMESIS with [illegible] pylorus in infant [illegible] posterior gastroenterostomy [illegible] (25) [illegible]
HEMATIN in [illegible] in [illegible] disease, (49) [illegible]
HEMATOCELE [illegible] recto-uterine, [illegible] ovarian cyst, [illegible]
HEMATOMA, [illegible] treatment of, (51) [illegible]
HEMATOMYELIA, [illegible] 1976—ab
HEMATOPORPHYRINURIA, [illegible] after 10 years [illegible] 9 days, (74) [illegible]
HEMATURIA [illegible] der, [illegible] of
renal and ureter [illegible] (114) [illegible]
with [illegible] 3)
HEMATROPHY, [illegible] of
of [illegible] 1376 [illegible] 7)
HEMIMELIA [illegible]
HEMIPARESIS [illegible] ine
[illegible] 17)
[illegible] (12) [illegible]
HEMIPLEGIA, [illegible] lo-
[illegible] (27)
[illegible] (19) 214
[illegible] lower
[illegible]
HEMO[illegible]
HEMO[illegible]
[illegible] g.
HEMOGLOBIN [illegible]
[illegible]

HEMOGLOBIN in urine, and bile pigment, sand test for, (58) 1613
HEMOGLOBINURIA in uncinariasis, (111) 615
  Malarial: See Blackwater Fever
  paroxysmal, and Raynaud's disease, relation of, (116) 63
  paroxysmal, salvarsan in, (26) 1980
  paroxysmal, with leukemic lymphomatosis, (111) 518
HEMOLYMPH nodes and accessory spleens, experimental production of, 701—ab
HEMOLYSIN production by streptococci, (54) 707
HEMOLYSIS following transfusion of blood, 1785—ab
  function of spleen with reference to hemolytic anemia and, (48) 969
  of streptococci, a pregnancy reaction, (180) 286
  resistance of blood-corpuscles to, by saponin, (19) 1059
HEMOPHILLA and hemophiliac arthritis, (105) 1327
HEMOPSONINS of blood serum influenced by splenectomy and organ extracts, (45) 706
HEMOPTYSIS, classification and treatment, (14) 194
  in child 4 years old, fatal, (6) 1426
  in pulmonary tuberculosis, treatment of, (11) 1230
  pneumothorax for, (25) 605
  treatment of, (39) 889, (58) 1232
HEMORRHAGE, accidental, etiology of eclampsia and albuminuria, and relation to, (15) 1884
  accidental, with free blood in abdomen, (18) 1610
  blood-platelet preparation to arrest, (72) 613, (81) 978, (89) 1241, (102) 1243
  brain, observed from onset, (114) 63
  cerebral, and spasmodic closing of cerebral arteries, (2) 1053, (27) 1054
  cerebral, color-serodiagnosis of, (51) 201
  cerebral, report of case, *16[illegible]
  circulation during, pathologic physiology of, (10) [illegible]03
  climacteric, formaldehyd cauterization for, (94) 1333
  conjunctival, in typhoid, (105) 608
  from gunshot wounds, compression with rubber sponge to arrest, (77) 1511
  from movable kidney, (103) 2081
  gastro-intestinal, fatal, 3 cases, (7) 194
  gastro-intestinal, postoperative, (101) 2081
  genital, in new born girl babies, 10 cases, (57) 2167
  horse-serum for prevention of, in nose and throat operations, 271—ab, (2) 1694
  hysterectomy and, 3 indications, (31) 1324
  in appendicitis, postoperative, technic for operation based on, (140) 1883
  in tuberculosis, (161) 285, (61) 429
  internal diseases and, (263) 364
  intra-abdominal, complicating normal pregnancy, (45) 2072
  intracranial, decompressive trephining on sound side for, (62) 202
  intracranial, in infant, *1760
  intraperitoneal, rupture of corpus luteum with, (5) 1230
  kidney, continuous, painless, treatment, *2110
  Lung: See Hemoptysis
  muscle flap to arrest, in heart and liver, experimental research on, (71, 74) 357
  nose and throat operations, normal horse serum in, (90) 1791
  nose, postoperative, method to prevent, (91) 1791
  nose, uncommon case of, (104) 2163
  obstetric, (79) 68, (87) 435
  post partum, treatment, (125) 2164
  reinjection of blood and saline solution, effects of, on vasomotor center and, (21) 888
  retroplacental, with placenta normally situated, (168) 206
  retrorenal, extensive, (36) 977
  roentgenotherapy for uterine tumors and, (120) 714
HEMORRHAGE, segregation of blood in limbs to relieve congestion in internal organs, edema or, (116) 359
  sinus, superior petrosal, *468
  stomach, (135) 1983
  stomach, acute, operative treatment, (29) 1141
  stomach, clinical aspects, (3) 1978
  subarachnoid, spontaneous, *1362, (42) 2312
  subdural, chronic, of traumatic origin and pachymeningitis hemorrhagica interna, (13) 2075
  suprapubic prostatectomy followed by, method of distinguishing, *2217
  suprapubic prostatectomy followed by, pneumatic bag pressure for controlling, (139) 1883
  uterus, ovariectomy for, (69) 202
  uterus, pathologic physiology of, *617
  uterus, roentgenotherapy in, *628, (120) 714
  uterus, roentgenotherapy of fibromas and, (138) 616
HEMORRHAGIC diseases, (45) 60
  inflammation, chronic, of prepatellar bursa, (91) 1063
  syndrome in various diseases, (105) 1334
HEMORRHAGICA neonatorum, transfusion of blood in, (28) 1880
HEMORRHOIDS, (41) 1885
  electrolysis in, (89) 510
  internal, urethral and prostatic symptoms due to, (104) 62
  Whitehead operation for, (83) 1607
  why they develop, (68) 1331
HEMOSTASIS by application of living tissue, (3) 431
  in surgery of brain, (91 [illegible]) 1056
HEMOSTAT, tonsil, new, ([illegible]3) 197
HEPATIC artery and portal vein, outflow of blood from liver as affected by variations in and pre[illegible] condition of, (24) 888
HEPCO flour, 1113
HEREDITY, (12) 974, 1755—ab
  and bovine tuberculosis, (8) 1978
  and cancer, 1480—E
  brain, and brain hygiene, (43) 1880
  in anomalies of eye, (93) 2074
  in man, (12) 1058
  laws of, (183) 361
  mental deficiency and, (124) 2075
HERMAPHRODITE, hernia of uterus, vagina and fallopian tubes in, (10) 708
HERMAPHRODITISM, (108) 1328
  and pseudohermaphroditism, (15) 1700
HERNIA, (60) 352, (58) 707, (21) 2310
  abdominal wall, (6) 1230
  appendicitis and, (39) 356
  appendix, (115) 2170
  bladder, 3 cases, (43) 611
  content, pathologic, (46) 2166
  diaphragmatic, (94) 435, (125) 1234, (15) 2310
  diaphragmatic eventration and, (49) 1060
  diaphragmatic, of stomach and part of small intestine, (42) 2076
  duodenal, in child, (9) 431
  epigastric, strangulated, (153) 1608
  fascia transplantation for, (51) 1790
  femoral, bone transplantation in, (26) 611
  femoral, operation by inguinal route, (66) 280
  femoral, strangulated, varix of internal saphenous vein resembling, (76) 197
  inguinal, and chronic appendicitis, (56) 202
  inguinal, appendicitis in, (93) 1989
  inguinal, operation of election for, (16) 1236
  inguinal, operations under local anesthesia, (75) 1326, (44) 2260
  inguinal, paraffin and wax shield in, in children, (94) 980
  inguinal, radical cure of, (11) 609
  internal closure of femoral opening for, (95) 2074
  muscle, fascia patch to cure, (22) 975
  perineal, (50) 2073
  postoperative, (47) 201
  postoperative abdominal, cause and treatment of, (72) 712
  recurring, (42) 1330
HERNIA, retrocolic, incomplete rotation of intestinal loop as cause of, (21) 610
  retroperitoneal, due to aberrant middle colic artery, *842
  sliding, (188) 973, (117) 1608
  strangulated, operation for, (136) 1983
  strangulated, Richter's, case of, (30) 2076
  umbilical, conservative treatment of, in newborn, (107) 814
  uterus, vagina and fallopian tubes in hermaphrodite, (10) 708
HEROIN in labor, (74) 1982
HERPES ZOSTER and hyperalgetic zones with kidney disease, (236) 363
  and malaria, (67) 1137
  following arsenic, (52) 1981
  gastric crises plus, (32) 514
  ophthalmicus, salvarsan in, (178) 362
  two attacks of, in same individual, (89) 1138
HERTER'S infantilism, 1601—ab
HETEROPHORIA and heterotropia, treatment of, (35) 706, (107) 2075
  and heterotropia, unanswered questions concerning, (108) 2075
  diagnosis of, from portrait of Abraham Lincoln, (164) 973
  effect of correction of ametropia on, *572
HETEROTROPIA and heterophoria, treatment of, (35) 706
  and heterophoria, unanswered questions concerning, (108) 2075
HEXAMETHYLENAMIN, (35) 273
  antiseptic action of, (34) 273, 964
  as urinary antiseptic, clinical and bacteriologic study of, (31) 2072
  in acute disease of lungs, (88) 1615
  in urologic therapy, (55) 1055
  test for urine affected by [illegible] (86) 812
  urine reaction, (110) 70
HEXAMETHYLENETETRAMINE a urinary antiseptic, (21) 200
HEXONE, formation of, and purin bases in autolysis of glomerella, (68) 1697
HEXOSE sugar in normal milk, bacteriologic and chemical evidence of, (33) 1505
HIGH FREQUENCY CURRENT from portable coils, 1596
  in bladder tumors, (79) 281, (39) 1422, (36) 1510, (11) 2165
  in calculi in diverticulum, (39) 1231
  low-tension, in tumors of bladder, (84) 281
  treatment, field for, (60) 279
HILTON'S Specific No. 3, 1409—P
HIP-JOINT, congenital luxation of, (1) 272
  disease, (51) 2261
  disease, conservative treatment of, (92) 510
  disease, diagnostic importance of tuberculin reaction in focus in, (68) 517
  disease of spine and, (1) 1426
  disease, tuberculin focal reaction in diagnosis of, (78) 203
  dislocations of, (27) 894
  dislocations of, traumatic, (22) 1879
  fracture dislocation of, (103) 1234
  fracture, Whitman's method for, (42) 1981
  osteo-arthritis of, early diagnosis, (21) 894
  snapping, brace for, (72) 435
  spontaneous luxation of, sequel of typhoid, (7) 272
  tuberculosis of, resection of, (30) 1509
  traumatism, in children and adolescents, (26) 1135
HIRSCHBERG'S disease, ceco-sigmoidoscopy for, (116) 2075
HIRUDIN, immunization against anticoagulating effect of, (11) 2259
HISTORY, medical, in medical education, 2046—E
HODGEN'S splint for fractures of femur, (134) 431
HODGKIN'S DISEASE: See also Pseudoleukemia
HODGKIN'S DISEASE, (37) 60, (76) 353, (109) 1881
  blood-picture in, (36) 59
  clinical consideration of, (38) 60
  medical aspects of, (98) 1982
  transmitted to guinea-pigs, (73) 435
HODGKIN'S DISEASE, tuberculosis and, (90) 614
HOLOTHURIAN, orientation of, by light, (2) 2258
HOME, operations at, when justifiable? 1418—ab
HOMO sapiens, ancestry of, (29) 706
HONEY and its adulterants, (81) 614
HOOKWORM DISEASE: See Uncinariasis
HORMONE, Langerhansian, and hormone treatment of diabetes, (67) 197
HORSE-LITTER, shockless, for transportation of wounded, *1476
HOSPITAL air, studying condition of, *1621
  Albany, 12th report, (6) 2070
  American, at Neuilly, 1042
  American, in Paris, help asked for, 1688—C
  American, in Petrograd, 1589, 2053
  American, needs of, 2053
  American Women's, at Paignton, 1867
  American, work of, 1683
  annoyances from, injunction granted against, 1975—Ml
  artificial illumination of, (116) 971, (79) 1137
  base, and wounded, (36) 2166
  base, work at, (28) 2311
  bookkeeping, medical, (24) 1980
  Boston Floating, (16) 1979
  Caroline A. Ladd, (24) 427
  Charlottenburg public, special treatment in, 496
  children's, at Los Angeles, new, (115) 971
  children's, Charles Dickens on, 342—ab
  Cincinnati General, new, (58) 2073
  city, functions of, 2048—E
  contagious diseases in, prevention of, *1941
  contagious pavilion of Evanston general, (83) 1138
  corps of navy, training school for, (118) 1983
  cost accounting, (71) 1507
  domestic employees of, special building for, (96) 275
  drugs and medical supplies in, purchase, preparation and distribution of, (94, 97) 275
  education and, (68) 1507, 1668—ab
  efficiency, items in, (60) 509
  equipped by Daughters of Empire, 1042
  ex-intern and, interrelation of, (40) 509
  exterior, pleasant, value of, 1027—ab
  feeding the, (82) 1138, (70) 1507
  field, (78, 90) 1331, (65) 1506, (47) 1701, 2253
  field, setting up, for first time, (69) 1886
  fire protection and fire drills in, (84) 1982
  first aid, for industrial plants, (98) 275
  first aid, in coal mines, (83) 1982
  food in, (87) 1982
  for small town, 1597
  general, and psychiatry, (25) 1793
  Hamburg-Eppendorf, surgical pavilion of, (37) 1060
  help the, (64) 1326
  hot-water bottle injury, liability of charitable, for, 506—Ml
  hot-water bottle injury in, physician not liable for, 1132—Ml
  in Canal Zone, private, 590
  intern year, 675, (97) 2074
  intern year, University of Vermont requires, 1049
  isolation, planning and management, (124) 276
  liable for death of delirious patient jumping from window, 1875—Ml
  liable for patient under own physician getting poison in, 1784—Ml
  local, cooperatively conducted, 50—C
  Massachusetts State, for insane, out-patient work in, (27) 1880
  Massillon State, school at, (93) 275
  military, electricity in, (34) 2166
  mikado gives money for, 1775
  military, in Paris, new, 1775
  motor, (100) 1881
  naval, economy and waste in, (95) 1057

- HOSPITAL, naval, Portsmouth, N. H., case reports from (112) 1057
  - negro problem in life of, 494
  - nurses and success of, (86) 1982, (116) 2163
  - of House of Calvary, new, (112) 971
  - old and new, *1631
  - open-air, in war time, (7) 1427, (26) 1428
  - operating-room technic in Royal Victoria, (61) 509
  - organization and accounting system, (77) 1137
  - Orthopedic, Seattle Children's, (56) 509
  - patients, offensive familiarity toward 593
  - physical therapy in, (99) 275
  - physical therapy in, from point of view of internist, *1731
  - physician and, (114) 2163
  - physician made agent to contract with, for care of injured employee, 1414—Ml
  - plans and description of $400,000, (62) 509
  - plans and equipment of Mount Zion, (54) 509
  - pleasant name for sanatoriums and, 1704—E
  - psychopathic, Cook County, new, (57) 1880
  - psychopathic, new, for Chicago, (72) 1507
  - psychopathic, social service of, (26) 195
  - public, and public health, relations between, (90) 358
  - records, (82) 1982
  - records, admissibility in evidence of, 1414—Ml
  - Robert W. Long, of Indianapolis, (91) 275
  - St. Luke's, at Jacksonville, Fla., (69) 1507
  - sanitary mess table for, (105) 1057
  - service, efficiency of, (115) 2163
  - service, woman's auxiliary as aid to, (92) 275
  - ship, British, fitted up, 1309
  - ship commandeered, (93
  - ship donated to Great Britain by Indian rulers, 1310
  - ship for convalescent wounded, 1491
  - ship, proposed plan of fleet, (103) 1057
  - ship "Solace," U. S. naval, organization and station bills of, (128) 1983
  - ship, United States, for deep-sea fisherman, (95) 275
  - ship wrecked, 1682, 1964
  - small, board, staff and special departments of, (59) 509
  - social service in, 496, (67) 707
  - standing-order evil in, from surgical viewpoint, (117) 2163
  - state, for insane, need for more, (84) 2074
  - superintendents, (113) 2163
  - supplies exportation of drugs and, prohibited in Austria, 1682
  - *surgical service in*, *1437
  - topics, current, review of, *1744
  - train, (60, 61) 1885
  - train, Red Cross, 1965
  - tuberculosis, advantages of state control over, (63) 509
  - tuberculosis home, 2170—ab
  - tuberculosis, in United States, comparative cost of maintenance, (60) 429
  - tuberculosis, referendum to establish in St. Lawrence county, N. Y., (22) 2159
  - tuberculosis, Winnebago County, referendum for, (19) 2159
  - unit offered to Canada, 1012
  - United States naval, in American Samoa, (58) 509
  - University of Vienna buildings transformed into, 1083
  - ventilating plants, tests of, *1620
  - ventilation from ventilating engineer's point of view, *1628
  - ventilation from viewpoint of clinician, *1623
  - war, offer to establish, 696
  - waste and what is done with it, (113) 971
  - wet nurse in, *1799
  - with charitable foundations, declaration of liability against, 906—Ml
  - work, convalescent labor in, (55) 509
  - work of Labrador mission, (11) 971
- HOT air jet in granulating wounds and burns, (79) 1797
  - water bag, damages for injury from, in operation, 344—Ml
  - water bottle injury in hospital, physician not liable for, 1132—Ml
  - water bottle, liability of charitable hospital for injury from, 50—Ml
- HOUSING in relation to climate and health, 346—ab
  - of Irish working classes, (26) 200
  - problem, (132) 276
- HUGHES' electromagnetic balance in military surgery, 2055
- HUMAN remains in America, early, 1116—E
- HUMERUS, dislocation-fracture of head of, (73) 1060
  - dislocation, subglenoid, (95) 979
  - fracture, extension apparatus for, (38) 1985
  - fracture, external condyle of, treatment by removing loose fragment, (168) 361
  - fracture of surgical neck of, (114) 276
  - fracture of surgical neck of, abduction and fixation of elbow in, (118) 2075
  - fracture of upper end of, analyses of 393 cases, (87) 703
  - fracture of upper end of, Hackér's splint for, (118) 198
  - fracture, supracondyle, peculiar healing, in 2 children, (166) 361
  - juxta-epiphyseal strain of, (21) 1428
  - obstetric injury of, (110) 359
- HUNGER, nervous control of, stimulation or inhibition of, 169—E
- HYALOID artery, persistent, rarity of certain variety of, (138) 431
- HYDATID CYST: See Echinococcosis
- HYDATID MOLE: See Deciduoma Malignum
- HYDRAMNIOS, (145) 276
  - acute, with uniovular twins, 18th week of pregnancy, (18) 64
- HYDROADIPSIA and water supply of living bodies, (101) 970
- HYDROCELE as first symptom of polyserositis, (152) 206
  - phenol injections in, *2219
  - surgical treatment, (36) 1885
- HYDROCEPHALUS, case of, (47) 1055
  - chronic, and inherited syphilis, (92) 1888
  - congenital, causes of, (103) 1334
  - internal, experimentally produced, (2) 2308
  - internal, operative treatment, by diversion of cerebrospinal fluid, (37) 1238
- HYDROGEN ion concentration, effect of, and of inhibiting substances *on urease*, (61) 1697
  - ions, concentration of, in contents of infant's stomach, (122) 436
- HYDROLYSIS, diastatic, of albuminoids, action of artificial organic stains on, (149) 72
- HYDRONEPHROSIS, (9) 2309
  - diagnosis of form of, due to movable kidney, (126) 1882
  - intermittent, (95) 1027
  - remittent, (122) 1244
- HYDROPHOBIA, (133) 616, *1658, (125) 1983
  - and dog-days, 246—E
  - atypical, (74) 1144
  - in Oklahoma, (78) 509
  - parasite, cultivation of, (75) 812
  - quinin in, (39) 703, (38) 804
  - report of case with autopsy findings, (159) 972
  - virus, artificial cultivation of, (102) 1983
- HYDROPS: See Dropsy
- HYDRORRHEA, nasal, etiology of, (33) 273
  - non-gravid, due to hysteria, (95) 62
- HYDROSALPINX, intermittent, (51) 1986
- HYDROTHERAPY: See also Balneotherapy; Baths
- HYDROTHERAPY in insane, (48) 428
  - and mechanotherapy for wounded and sick soldiers, (43) 1612
- HYDROXYL ions, reaction of earthworms to, (10) 508
- HYGIENE and society, 1671—ab
  - Child, Bureau of, New York City, Department of Health, 56—ab
  - in Prussian parliament, 496
  - in war, (58) 1430, 1775
- HYGIENE, industrial, (11) 350
  - industrial, and industrial disease, (44) 1231
  - industrial, regulations proposed for, (158) 72
  - military, Osler on, 1217
  - new institute of, at Madrid, 1681
  - personal, and public health, 2022—ab
  - personal, of schoolchildren, 2228—T
  - public, and war, 1217
  - public, measures of, 1591
  - school, (141) 893, 949—E
  - teachers of, training of, (10) 1793
  - teaching of, in public schools, resumé and recommendations of committee to investigate, (20) 427
- HYGIENIC laboratory, work of, for physician and public health, (134) 512
- HYGROMA, cystic, (35) 894
  - *of the groin*, *1853
- HYPERACIDITY, dietetic treatment of hypersecretion, peptic ulcer *and*, (40) 1429
- HYPERCHLORHYDRIA, (76) 806, (82) 2074
  - vicarious, (51) 433
- HYPEREMIA, local passive, fenestrated plaster cast to induce, (23) 1509
- HYPERGLYCEMIA and glycosuria, new principles concerning mechanism of, (60) 61
  - in elderly diabetics, (89) 435
- HYPERLEUKOCYTOSIS from action of cold, (60) 1331
  - specific, (27) 2071
- HYPERNEPHROMA, adrenal cortex, precocious development of external genitals due to, *2286
  - metastasis of, in spine, (139) 260
  - tongue in woman of sixty-two, (35) 1510
- HYPERSECRETION, dietetic treatment of hyperacidity, peptic ulcer and, (40) 1429
- HYPERSUSCEPTIBILITY: See Anaphylaxis
- HYPERTENSION: See also Blood-Pressure, High
- HYPERTENSION, D'Arsonval current in, (88) 970
  - arterial, (75) 197
  - arterial, and hypotension in medicine and surgery, (115) 1234
  - arterial, clinical importance of, treatment, (93) 1507
  - arterial, relation of, to arteriosclerosis and nephritis, (89) 275
- HYPERTHYROIDISM, 793, (56) 1506
  - and pathologic conditions of nose and throat, origin and treatment of, *769
  - primary and late results of operation, (14) 808, (76) 1056
  - subacute, 268—ab
  - treatment of goiter and, (93) 708
  - types and symptoms of goiter and, (110) 276
- HYPERTRICHOSIS in women, (106) 62
- HYPHOMYCETES in sprue, (26) 1884
- HYPNOSIS, subconscious centers influenced by, (61) 1796
- HYPOCHLORITE capsules for drinking water, (10) 1420
- HYPOCHONDRIACS, cardiac, (103) 275
- HYPO-EPINEPHRY, (77) 708
- HYPOPHYSIS CEREBRI, 2250—E
  - and glycosuria, (6) 1323
  - diabetes insipidus and, (46) 515, (132) 2170
  - disease and effect on shape of sella turcica, (23) 432
  - disease and roentgenoscopy of sella turcica, (83) 1959
  - disease, report of 3 cases, (6) 967
  - disturbances, relation of, to epilepsy, psychoses, personality and other obscure problems, (73) 806
  - Extract: See Pituitary Extract
  - genital disturbances, obesity and disease of, (59) 2264
  - implantation of, (79) 2074
  - in epileptics, (54) 1423
  - in pregnancy, (40) 2312
  - insufficiency and infantilism, (70) 1880
  - route to, 1500—ab
  - secretory innervation of, (5) 2258
  - surgical experiences with disorders of, *1515
  - tumor, acromegaly and splanchnomegaly in male cadaver of thirty-two, (36) 1141
- HYPOPHYSIS CEREBRI tumor, intranasal operation in, (88) 1791
  - tumor, operation, (57) 890
  - tumor, pathologic investigation of 4 cases of, (25) 432
  - tumor, successful removal, (87) 1989
  - tumor, with infantilism, fat deposits and genital dystrophy, (72) 898
- HYPOPITUITARISM, (59) 1055
- HYPOSPADIA, surgical treatment of, (230) 363
- HYPOTENSION and arterial hypertension in medicine and surgery, (115) 1234
  - pituitary extract in control of symptoms of pneumonia which favor, (11) 1604
- HYPOTHYROIDISM and thyroid, (11) 354
  - in male, case of, (11) 278
  - in school-children, symptoms of, (25) 1236
- HYSTERECTOMY for multiple subserous fibroids of uterus complicating pregnancy, (83) 607
  - hemorrhage and, (31) 1324
  - in place of cesarean section, (118) 1705
  - supervaginal plastic, new, (180) 973
  - total or subtotal? (26) 975
  - vesicovaginal fistula following, closure of, (64) 2161
- HYSTERIA, (80) 2168
  - Addison's disease aggravated by ascaris lumbricoides and, (20) 1236
  - non-gravid hydrorrhea due to, (95) 62
  - traumatic, (26) 355, (82) 614
- HYSTERO-EPILEPSY, recovery, and comments on psychanalysis, (119) 63
- HYSTEROTOMY, *292
  - for pregnancy complicated by severe morbus cordis, spinal anesthesia in, (14) 974

I

- ICE cream, detection of gelatin in, (69) 1137
  - cream studies in Cincinnati, (10) 2160
  - danger of infection from, 786—E
- ICTERUS: See Jaundice
- IDAHO medical news, 874
  - state board April *report*, 2152
- IDENTIFICATION of individuals through changing peculiarities of blood, 1299—E
- IDIOCY, amaurotic family, juvenile form of, (48) 432, (51) 710
  - *mongoloid*, (61) 2264
  - puncture of corpus callosum in treatment of epilepsy and, (28) 1237
- IDIOT: See also Degeneracy; Feeble-Minded
- IDIOT, microcephalic, with malformation of brain, *536
- ILEAC stasis, roentgenology of ileocolic valve with reference to causation of, *1194
- ILEOCECAL coil, surgery of, (117) 510
  - region, topographic palpation of, (188) 362
  - roentgenoscopy, (72) 2074
  - valve, roentgenology of appendix and, (14) 1879
- ILEOCOLIC valve, roentgenology of, with reference to causation of ileac stasis, *1194
- ILEOCOLITIS, acute, in infants, (3) 1694
- ILEOSIGMOIDOSTOMY, condition of patients 2 years after, *444
  - *for* intractable constipation, (77) 203
- ILEUM, b - iminazolylethylamine formed in, in constipation, (47) 432, (50) 710
  - stasis, (125) 1882, (38) 1981
- ILEUS, diagnosis of nature and location of, (43) 977
  - from gall-bladder calculus, (27) 1141
  - pathogenesis of, (220) 362
  - pathology of, (33) 1141
  - perforation of cecum with, in lower intestines, (138) 360
  - spasmodic, in infant simulating intussusception, *1391
  - splashing sound and false ascites as signs of, (30) 514
  - spastic, (112) 814
  - stenosis of splenic flexure causing, (167) 206

ILEUS, torsion of colon, movable cecum and, (30) 1141
ILIAC artery, aneurysm of internal, (17) 1884
  vein, calcareous shell in external, 20 years after puerperal phlebitis, (6) 349
ILIOFEMORAL aneurysm, occlusion of artery in treatment of, *207
ILLINOIS, comparison of appropriation by, for game, stock and citizens, *1959—E
  medical news, 39, 172, 250, 328, 410, 491, 587, 693, 789, 874, 954, 1039, 1121, 1212, 1305, 1401, 1585, 1679, 1770, 1862, 1960, 2050, 2140, 2236
  school for blind with record of causes of blindness, (58) 1325
  state board June report, 2153
  state board May report, 1224
IMBECILITY: See Idiocy
B-IMINAZOLYLETHYLAMIN in ileum in constipation, formation of, (47) 432, (50) 710
IMMUNITY and vaccines in relation to surgery, (92) 62
  brain and olfactory apparatus in relation to, (36) 273
  by radium irradiated mouse cancer, (32) 279
  clinical signs of decreased, and chronic deficient nourishment, (105) 814
  cytology of blood in, (8) 1058
  fatigue toxins in, (39) 2312
  in malaria, (8) 1984
  proper food and, 1297—T
  transplantable chicken tumors and, (79) 1606
  tuberculosis and, (94) 358, *1098, (100) 1138, (110) 1327
IMMUNIZATION against action of substances inhibiting tumor growth, (48) 1789
  against anticoagulating effect of hirudin, (11) 2259
  of animals with anaphylatoxins, (75) 1606
IMPALEMENT injuries, 5 cases, (75) 1060
IMPLANTATION: See Transplantation
IMPOTENCY, inefficacy of mechanical devices for cure of, (80) 1241
INANITION, blood in, (9) 603
INCINERATION, cost of, (5) 802
  disposal of city waste by, (123) 1139
INCISION, abdominal, and intra-abdominal pressure, (93) 1138
  abdominal, Sprengel's plastic transverse, ultimate results with, (49) 2077
  exploratory, as aid to diagnosis, (82) 509
INCLUSION bodies, Döhle's leukocytic, in scarlet fever and other diseases, investigation of, (20) 278, (67) 357
INCUBATOR, Sloane Hospital, *947
  treatment for premature and weak infants, (43) 2263
INCURABLES, Home for, a depressing name, 1304—E
INDEX to Journal American Medical Association, 2292—E
INDIA-INK method of examination of spirochaeta pallida, *1666
INDIAN service physicians confer, 253
  wounded, 1966
INDIANA, improved schoolhouses as result of sanitary schoolhouse law in, 489—E
  medical news, 251, 328, 410, 491, 789, 954, 1039, 1121, 1212, 1305, 1679, 1770, 1862, 1961, 2140
  public health in, 1119—E
  state board July report, 1972
INDIANS, infectious and contagious diseases among, (113) 1882
INDICANEMIA and uremia or azotemia, (42) 1430
INDICANURIA, marked, in psychopathic patient, (46) 1055
  recurring, in diagnosis of gastro-intestinal disease, (84) 357
INDIGESTION: See also Dyspepsia
INDIGESTION forerunner of cardiovascular and cardiorenal diseases, (111) 2075
  intestinal, (89) 1507
  intestinal, chronic, in children, in production of epilepsy, 1133—ab, (60) 2161
INDOL and its derivatives, (112) 615
INDUSTRIAL accident, economic prognosis with, (41) 356
  accident insurance from medical standpoint, (111) 1990
  accident, repose as aid and hindrance in, (121) 616
  accident, to hasten recovery after, (262) 364
  disease and industrial hygiene, (44) 1231
  disease and injuries, municipal institutions for, (101) 1888
  disease and insurance companies, (38) 1789
  disease and mortality in Hungary, (86) 68
  disease as public health problem, (39) 1789
  disease, death from, not accidental, 1600—Ml
  disease in Hungary, (99) 518
  disease, prevalence of, and suggestions for elimination, *2093
  disease, traffic officer's neuroses, 2151—C
  fatigue, (25) 200
  hygiene, (11) 350
  hygiene, regulations proposed for, (158) 72
  insurance, 35—E, (40) 60
  neuroses, pathogenesis and treatment, (28) 706
  poisoning in manufacture of fertilizer, (64) 1431
  skin diseases, (52) 606
  skin diseases, nervous system in, (53) 66
INEBRIETY: See Alcoholism
INFANT, acidity of stomach contents in children and, influence of milk and meat test diets on, (103) 814
  ammoniacal urine, clinical significance of, in children and, (100) 429
  anaerobes, obligate, in gastro-intestinal tract of, (30) 1985
  anaphylaxis and status lymphaticus in relation to intensified types of diseases in children and, (14) 432, (13) 894
  anemia in, blood-pressure in, (2) 1502
  anorexia nervosa in, (25) 59
  appendicitis, (51) 60
  asphyxia in newborn, sequelae, (108) 198
  athrepsia and incessant vomiting in, sugar for, (54) 434
  bacillary dysentery in, clinical picture of, (195) 362
  bacillus coli infections in, (60) 806
  blood coagulability in young, (138) 283
  bronchial lymph-nodes in, diagnosis, significance and treatment of, (44) 889
  care of new-born, (24) 59
  cause of distress in, (36) 427
  circumcision in masturbation of female, (7) 887
  conjunctiva not sterile in new-born, (112) 1334
  convulsions, afebrile, in children and, diagnosis and treatment, 57—ab, (39) 1506
  diarrhea in, protein milk in, (35) 509
  diathesis in, (7) 513
  digestion and starch, *1375
  digestion of starch and milk in stomach of, (102) 1334
  digestive disturbances of artificially fed, (11) 887
  diphtheria of gums in 2 infants, (109) 713
  ductus arteriosus and persisting aortic stem in, living for 6 months, (87) 1703
  duodenum ulcers in, 5 cases, (7) 1978
  eczema in, (13) 1700
  eczema in children and, causes and treatment of, (91) 608, (13) 1980
  enteritis, acute, and hemiplegia in, (40) 514
  enteritis with general intestinal infection of new-born, (191) 439
  erythrocyturia in children and, (102) 814
  fasting metabolism of, (23) 605
  fat-constipation in artificially fed, (56) 275
  feeding, (29) 1135, (71) 1790, (108) 1881
  feeding, albumin milk in, (209) 362, (254) 364, (70) 434
INFANT feeding and gastro-enteric tract diseases, (79) 353
  feeding and gastro-intestinal diseases of, review of literature on, 1913-1914, (3) 426
  feeding, artificial, low fats and high proteids in, results of, 55—ab
  feeding, boiled milk in, *1991
  feeding, breast milk problems, *1179
  feeding, breast milk skimmed in, *1181
  feeding, breast milk, triplets successfully fed, (24) 432
  feeding, butter-fat in, 246—E, 420—C
  feeding, caloric requirement for, 55—ab, (222) 362, (225) 363, (29) 1605
  feeding, carbohydrates in, management of, (129) 198
  feeding, casein in, (2) 887
  feeding, cod-liver oil and vegetables superior to butter and cream, (111) 359
  feeding, cow's milk for, (89) 813
  feeding, desiccated milk in, (108) 1243
  feeding, discussion on, 1183—ab
  feeding in earlier months, (54) 60
  feeding in first month of life, (17) 2310
  feeding in hospitals, more individualization in, (82) 1703
  feeding, is there injurious residue in, (60) 1796
  feeding, lactose and sodium citrate in, (73) 1614
  feeding of malnourished, with high proteins, carbohydrates and low fat values, 55—ab
  feeding of sick, (80) 197
  feeding, peanut milk in, (44) 1429
  feeding, physician's field in, *1177
  feeding, problems in, (66) 1326
  feeding, whey-albumin-milk for, (157) 284
  feeding, whey modified milk in, (2) 1134
  full-term, delivered with early twin ovum, 3 cases, (20) 1884
  gastro-intestinal disturbances, (76) 68
  genital hemorrhage in new-born girl babies, 10 cases, (57) 2167
  growth and development of full-term under weight, (88) 1063
  heat and, 1204—T
  heat and morbidity and mortality of, from gastro-intestinal diseases, *1371
  hernia, umbilical, conservative treatment of, in new-born, (107) 814
  hygiene, museum for, 46
  hypertonicity in new-born, (112) 359
  ileocolitis of, acute, (3) 1694
  ileus, spasmodic, simulating intussusception, *1391
  intestine flora of young children and, (30) 278
  intestine, increased permeability to foreign albumin, (140) 283
  intestine obstruction in child of 3 months due to cyst of cecum, (5) 277
  intestine permeability of, in new-born and sick, 31—ab
  intracranial hemorrhage in, *1760
  jugular bulb injury following myringotomy in 10 months old, (30) 273
  leukemia in, (85) 1703
  life, conservation of, (148) 1699
  liver lesion, congenital in new-born, and athrepsia, (36) 514
  malaria, congenital, in, (104) 1334
  measles in, 33 cases, (127) 1890
  melituria in, and disorders of nutrition, 2256—ab
  meningitis, recovery from, under antiparameningococcus serum, (58) 202
  metabolism of, influence of lactose on, (4) 1135
  milk idiosyncrasy, (169) 206
  mortality, (52) 889, 1265—ab
  mortality and alcoholism, 335
  mortality and fly, 423—ab
  mortality and low standard of health of Australian women, 601
  mortality and nativity of parents, 2186—ab
  mortality campaign in Toronto, 43, 793, 1309
  mortality in Canada, 793
  mortality in Philippine Islands, 487—E
INFANT mortality, prevention of, (126) 276, 1964
  mortality, reduction of, (101) 1327
  mortality, reduction of, in Germany, 177
  muscular deformity of forearm of newly born, (71) 1060
  nephritis, acute, (50) 612
  neuropathic equivalents in, (85) 813
  noises and, (22) 1141
  nourishment, deficient, (103) 1064
  nutrition of new-born, 404—E, (116) 714
  osteomyelitis of upper jaw in new-born, (55) 896
  pemphigoid of new-born, *1159
  phosphate excretion in, (1) 193
  pneumonias, atypical, of children and, (127) 1328
  premature and delicate, management in home, *1758, 1978—ab
  premature and weak, incubator treatment for, (43) 2263
  proteus meningitis and proteus sepsis in new-born, (67) 977
  pyelocystitis in, (149) 284
  pylorospasm and habitual vomiting in, (139) 283
  pylorospasm in, treatment, (83) 1063
  pylorus obstruction in, (30) 1884
  pylorus stenosis, hypertrophic in, 5 cases, (50) 1986
  pylorus stenosis with hematamesis in 3 weeks infant, posterior gastro-enterostomy in, (25) 809
  pyuria in, (88) 510
  respiratory exchange of, (1) 426
  rumination in, (196) 362
  salvarsan in, intravenous administration of, (118) 1234
  sensitization to egg-albumin, (79) 1982
  serum, blood-dust in, (59) 202
  serum, turbid and opalescent in new-born, (144) 284
  skull of, supernumerary bone in, (84) 1703
  spasmophilia in, treatment for, (121) 436
  splenomegaly in, 132—ab, (16) 704
  stomach, anatomy of, observations on, noted in course of use of balloon-duodenal catheter, (3) 193
  stomach, concentration of hydrogen ions in contents of, (122) 436
  stomach secretions in, effect of sugars on, (116) 1608, (15) 1979
  sympathetic nervous system, effect of epinephrin on, (192) 362
  syphilis, congenital, diagnosis of, (91) 1327
  tendon reflexes in children and, physiology of, (66) 1988
  thoracic dulness in, (101) 1334
  thorax in new-born, (54) 710
  tuberculin skin reaction in, (91) 358
  tuberculosis, bronchial lymph-node, healing process of, (4) 1235
  tuberculosis in children and, post-mortem examinations, (5) 1787
  tuberculosis in, glandular, diagnostic importance of enlarged glands in axilla with, (112) 2169
  tuberculosis in, with bronchogeneous, placentogeneous, dermatogeneous and enterogeneous infection, (5) 1235
  tuberculosis, lung, chronic, diagnosis of, (4) 1328
  tuberculosis, neglect to provide for infant in campaign against, *2176
  typhoid, high caloric diet in, 55—ab
  urinary apparatus in, purulent diseases of, (100) 1334
  urine analysis in diseases of children and, *1802
  urine during first few days of life, (110) 713
  valvular disease in children and, (105) 429
  volatile fatty acids in intestine of, with gastro-intestinal disturbances and relation to disturbance in metabolism, (227) 363
  Wassermann test in new-born, (145) 360
  weight and measurement of children and, in private practice compared with institution children, (1) 1787

- INFANT weight, loss of, in newborn, cause of physiologic, 404—E, (88) 813
  - welfare, articles on, 796
  - welfare in rural districts, measures for, (253) 364
  - welfare work, 254, (41) 352
- INFANTILISM, (9) 967
  - familial splenomegalic anemia with, (2) 893
  - fat deposits and genital dystrophy with tumor of hypophysis, (72) 898
  - Herter's, 1601—ab, (30) 2260
  - with hypophyseal insufficiency, (70) 1880
- INFECTIONS, acute, adrenals in, (116) 1426
  - acute, heart in, *2178
  - acute, in laboratory animals, bacteriology and control of, (19) 278
  - acute suppurative spreading, of hands and fingers, surgical treatment, (90) 608
  - acute, thrombosis and embolism in, (54) 197
  - aerial conveyance of, (38) 201
  - autogenous vaccines in treatment of chronic pus, (45) 428
  - bacteriology of various, *903
  - bronchogeneous, placentogeneous, dermatogeneous and enterogeneous, with tuberculosis in infancy, (5) 1235
  - chronic, and internal disorders, (125) 1139
  - chronic and psychoneurosis, 1977—ab
  - chronic deficient nourishment and clinical signs of immunity and, (105) 814
  - faucial tonsils gateway to general, *1638
  - field dressings and, (85) 2079
  - flagellate, of sand-flies, (14) 1984
  - focal, and general disease, *899
  - focal, chronic, of nose, throat, mouth and ear, *1636
  - gynecologic and puerperal, turpentine in, (189) 362
  - intra-abdominal, iodin in prevention of peritonitis in belated cases of, (32) 1696
  - local, and joint affections, (29) 1980
  - mixed, in pulmonary tuberculosis. tuberculin treatment of, (2) 512
  - mixed, in tuberculosis, (16) 58
  - mixed, in tuberculosis, vaccine therapy of, (163) 285, (1) 512
  - mouth, a, source of systemic disease, *2024, *2025, *2026
  - nasal cavity, due to diseased tooth-root, *549
  - peridental, factor in nervous diseases, *2027
  - pneumococcus, in rabbits, leukocytic extract, (25) 1980
  - Puerperal: See Puerperal Infection
  - skin, nitro-muriatic acid for boils and, (101) 353
  - vegetable parasitic, deep muscular injections of mercury in, (82) 353
- INFECTIOUS DISEASES, acute, alien in relation to spread of, (88) 197
  - acute, in children, treatment of, (141) 360
  - agglutination titer in, (77) 813
  - among Indians, (113) 1882
  - as factor in varices, (146) 206
  - during war, (53) 1796
  - importance of discoveries in, 1719—ab
  - in Algeria, measures against, 1775
  - notification of, new regulations for, 497
  - prophylaxis of, (106) 1888
  - systolic and diastolic blood pressure in, (91) 980
  - transmission and disinfection, (85) 1607
  - variation in amount of complement in blood in, and clinical features, (18) 1984
- INFLAMMATION arrested by analgesics, (109) 615
  - vascular dilatation and slowing of blood stream in, *2279
- INFLUENZA in children, manifestations of, (112) 1608, (12) 1979
  - nose and throat, chronic, (21) 1420
- INHALATION mercurial treatment by, (111) 1334
  - systematic therapeutic, (50) 1795
- INHALATION therapy, (127) 436
- INHALER, Allis, aid in use of, (136) 971
  - ether, improved, (86) 1791
- INJECTION, alcohol, in trifacial neuralgia, *1725
  - intradural, mercurialized serum in cerebrospinal syphilis, *2182
  - intradural, of neosalvarsan in syphilis of nervous system, technic of, *137
  - intrameningeal, of neosalvarsan in syphilis of nervous system, *2287
  - intramuscular, in syphilis, experimental data on, (61) 352
  - intramuscular, of blood, in leukemia, (51) 1143
  - intramuscular, of quinin superior to administration by mouth in malaria, (6) 1053
  - intraspinal, (81) 2074
  - intraspinal, of neosalvarsan, Los Angeles deaths from, (42) 60
  - intraspinal, of salvarsan in general paralysis and tabes dorsalis, articles on, 1781
  - intraspinal, of salvarsan, in late syphilitic nervous manifestations and parasyphilitic nervous diseases, (1) 58
  - intraspinal, of salvarsan, technic for, (140) 360
  - intraspinal, of salvarsanized serum for syphilis of central nervous system, *1936
  - intrathecal, of salvarsanized serum, (25) 65
  - intravenous, (55) 60
  - intravenous, in arthritis, (43) 2260
  - intravenous, new instrument for, (95) 1138
  - intravenous, of colloidal silver, technic for, (80) 1512
  - intravenous, of concentrated solutions of neosalvarsan, (92) 1989
  - intravenous, of iodoform in leprosy, (25) 355
  - intravenous, of mercury in syphilis, *563
  - intravenous, of radium element, (55) 2261
  - intravenous, of salvarsan, in syphilis, (56) 60
  - intravenous, tumor growth and cyclic changes in ovaries, (77) 891
  - nutrient, intravenous and subcutaneous, of sugar according to Kausch, (123) 2170
  - oxygen, subcutaneous, (40) 1981
  - quinin, limitation of after-pain of, (33) 1884
  - subconjunctival, (111) 1426
  - subconjunctival, of mercuric cyanid in incipient cataract, 1603—ab
- INNOMINATE artery, ligation of, successful, (38) 350
- INSANE, boarding out, in families, 415
  - chronic, pedagogy among, (41) 1880
  - commitment of, in United States, (51) 1880
  - delusions, what constitute, 2308—Ml
  - hydrotherapy in, (48) 428
  - keeping of, (83) 429
  - mental processes in sane and, (21) 2165
  - nursing of, modern developments in, (24, 27) 1324
  - out-patient work in Massachusetts State Hospital for, (27) 1880
  - paralysis of, treatment of, (30) 427, (117) 1327
  - pedagogy among chronic, 1909—ab
  - person, physician as committee of, 2067—Ml
  - restraint of, indications for, (59) 1880
  - state hospitals for, need of more, (84) 2074
  - surgery in hospitals for, (89) 1881
  - Wassermann reaction among acute and chronic, (62) 1326
- INSANITY: See also Mind, Diseases of; Psychiatry
- INSANITY among Jews, (90) 1425
  - brain atrophy in relation to, (7) 704
  - causes of, (18) 508, (18) 513
  - diagnosis, (133) 1608, (40) 1880
  - diagnosis and prognosis, (125) 1608
  - divorce and, (77) 2074
  - emotion as factor in etiology of suicide, criminality, mortality and, (45) 1880
- INSANITY, ganja as cause of crime and, in Bengal, (23) 2165
  - increase of total nitrogen and urea nitrogen in cerebrospinal fluid in, (43) 2072
  - manic-depressive, diagnosis and treatment of, (11) 1135
  - manic-depressive, recoveries, (46) 1880
  - meaning of, (20) 2165
  - periodical and partial interruption of operation of mind, (36) 1794
  - prevention of, 494, (122) 2075
  - problem, present status of, (120) 276.
- INSECTS and disease, 635—ab
  - and pellagra, 2 years' study, (66) 1424
  - and war, (10) 1427, (2) 1507, (3) 1609, (7) 1699, (10) 1793, (9) 1883, (19, 25) 2075, (7) 2164
  - causation of disease, Dr. Nott's theory, (69) 1424
  - duck as destroyer of, *1203, 1410—C
- INSOLATION, (102) 62
  - signs of death from, 1596
- INSOMNIA, (56) 1431, (12) 1508
  - idiopathic, 2015—ab
  - psychic factor in, (34) 2076
- INSPECTION, Medical, of Schools: See Schools, Medical Inspection of
- INSTRUMENT: See also Apparatus
- INSTRUMENT, abdominal retractor and wound protector, new self-retaining, (149) 277
  - aneurysm needle, two-eyed, (94) 1056
  - brace for snapping hip-joint, (72) 435
  - capsulotomy knife, *851
  - catheter, self-retaining, collapsible, T-shaped, for suprapubic drainage of urinary bladder, *1031
  - clamp to facilitate suture anastomosis of hollow viscera, (153) 276
  - compressor, for moving skin of abdomen in roentgenotherapy, (72) 1332
  - Crile cannula, modification of, (90) 1233
  - electric drill, saw, reamer and trephine in bone surgery, (155) 277
  - esophagoscope, new, (20) 273
  - for measurement of skin sensation, (47) 1231
  - for measuring heat production, *827
  - for trefoil keratectomy, *839
  - forceps, modified, (65) 197
  - gastroduodenal tube, (127) 971
  - intra-uterine forceps, (104) 203
  - intravenous injection, new, (95) 1138
  - intubation, (42) 1885
  - mouth-finger, *1030
  - needle holder, magnetized, (111) 62
  - needle, self-retaining, for administering salvarsan intravenously, *1029
  - ophthalmoscope, electric, new, (87) 607, (163) 973
  - pneumograph for recording respiratory movements graphically, (61) 1326
  - pupillometer for determining hemiopic reaction, *846
  - radium applied to tumors of bladder directly by, (104) 429
  - retractor and tube pilot for emergency tracheotomy, (136) 1882
  - roentgenographic centroscope and episcope, (31) 2076
  - salinometer, heat - compensated conductivity, description of, (33) 278
  - stethoscope, new, simple, *482, (89) 1989
  - Sussmann gastroscope, (52) 1325
  - syringe for ear, nose and throat, (64) 197
  - syringes, graduated, standardization of, (81) 1241
  - tangent curtain for delimiting scotomata, (34) 2072
  - thumb forceps for anastomosis, (47) 1421
  - tonsil hemostat, new, (63) 197
  - tonsillectome, (110) 1698
  - umbilical cord or funis retractor, *1031
- INSUFFLATION, Intratracheal: See also Anesthesia, Intratracheal Insufflation
- INSUFFLATION, intratracheal, (43) 515, (87) 1233, (91) 1989
  - intratracheal, of chloroform, (30) 2165
  - intratracheal, of ether, (15) 894, (31) 2165
  - intratracheal, retroperitoneal and extensive subcutaneous emphysema following, recovery, (112) 2163
  - tracheal, erroneous deductions from, (90) 198
- INSURANCE, accident, and medical profession, (80) 806
  - accident, compulsory for university students, 1866
  - act, British national, 486—E
  - act, developments in medical service of, 254
  - companies and fee bills, 1223—C
  - companies and industrial diseases, (38) 1789
  - companies, educational value of cancer statistics to public, medical profession and, (144) 277
  - company, health activity by, in Ohio, (155) 972
  - company seeking to improve individual and public health, (81) 1982
  - compulsory, for workingmen, (38) 2166
  - compulsory in Germany and Austria, 2053
  - continuous confinement within house and, 507—MI
  - examination, *1752
  - examination of policy holders by Life Extension Institute, (84) 1233
  - health, and medical profession, 1687—C
  - industrial, 6—ab, 35—E
  - industrial accident, from medical standpoint, (111) 1990
  - life, chronic discharging ears and, (55) 1506
  - life, directors meet, 1123
  - life, examinations, diagnostic value of sphygmomanometer in, (53) 1506, *1752
  - life, examinations, examination of urine in, (155) 1699
  - life, examinations, microscopy of urinary sediment in, (154) 1699
  - Life, Extension Institute, examination of policy holders by, (84) 1233
  - Life, Extension Institute, work of, from standpoint of medical examiner, (87) 1425
  - life, medical, (109) 608
  - life, medical investigations, (59) 2073
  - life, observation of mouth and teeth from standpoint of, (52) 1790
  - life, prognosis of heart disease and, (54) 1506
  - life, surgery in relation to, (53) 806
  - overweight and, (84) 1425
  - social and industrial, (40) 60
  - social, and tuberculosis, (42) 889
  - state, against sickness, 185—ME
- INTELLIGENCE-TESTS, variability in results, *319
- INTERN service, problems of, (97) 2074
  - third meeting of French, 176
  - year, 675
  - year, California Medical College requires, 1224
  - year, University of Vermont requires, 1049
- INTERNATIONAL Anti-Alcoholic Congress, 339—C
  - Congress for Obstetrics and Gynecology, meeting of, 42
  - Congress for Sexual Research, meeting of, 331
  - Congress on Home Education, fourth, postponed, 1215
  - Congress, war interferes with, 590
  - Medical Congress, other congresses conflicting with, 590
  - Public Health Office at Constantinople, dissolution of, 2144
- INTERSTATE Medical Journal, 1594—P
- INTESTINE adhesion, (131) 1234
  - anastomosis, technic of, with reference to modification of Maunsell's method, (15) 2070
  - and liver trouble due to chronic dyspepsia, (98) 814
  - antisepsis, biologic aid in, (69) 707
  - Antiseptics W-A refused recognition by Council, 2247—P

INTESTINE, cancer of duodenum and small, (7, 24) 1793
cancer of large, in young, (31) 611
cancer of large, 39 cases, (60) 1060
catarrh in children, chronic, treatment of, (75) 1432
contraction of small, variations in, 1399—E, (10) 1503
derangements and posture, relation of, to coxitis, *2199
development of, critical period in, (2) 1323
diarrhea after resection of, (110) 2081
diverticula of small, other than Meckel's, (45) 66
entamebas in, differential diagnosis, (41) 273
enteritis in new-born with general infection of, (191) 439
flora of infants and young children, (30) 278
gunshot wound of, (67) 2167
helminthiasis in Philippines, (137) 1698
hernia of stomach and part of small, (42) 2076
indigestion, (89) 1507
indigestion and auto-intoxication, (73) 2074
indigestion, chronic, in children, and epilepsy, 1133—ab, (60) 2161
infant, permeability to foreign albumin increased, (140) 283
injury to, from contusion, (73) 1511
insufficiency, *astringents and opium* contra-indicated with, (110) 2081
intoxication, (16) 278, (103) 970
intoxication and eye diseases, (70) 1056
intoxication and lesions of large intestine including appendix, treatment of, (126) 431
intoxication and pyorrhea alveolaris, (15) 278
intoxication, Lane's complex, and manifestations of senility, (84) 708
irritation of, chronic, secondary *to stomach disease*, (68) 2079
large, discussion symposium on, *455
lesions of small, relation to disorders of stomach and cap as observed *roentgenologically*, (15) 426
loop, incomplete rotation of, as cause of retrocolic hernia, (21) 610
melanosis in large, (58) 1701
musculature, effects of caffein and nicotin on, (107) 892
myiasis, *321
obstruction, (97) 353, (71) 806, (19) 1236, 1299—E, (88) 1697
obstruction, acute, 1229—ab, (103) 1425
obstruction, acute, anatomy and pathology, (87) 1697
obstruction, acute, pleating as cause of, (26) 513
obstruction and rupture with coprolith abscess, septic peritonitis, and gangrenous appendicitis, (17) 894
obstruction due to cancer of colon, (144) 1608
obstruction due to cyst of cecum in child of 3 months, care of, (5) 277
obstruction due to worms, articles on, 50
obstruction, gall-bladder calculi causing, (30) 355
obstruction, *toxins of*, (31) 805
obstruction with report of feeding heterologous jejunal and ileac cells to a human being, *1079
operative treatment of diseases of large, (24) 1605
oxidase in melanotic large, (145) 284
parasites in adults, 2158—ab
parasites in Texas, microscopic findings in 15,000 cases, (112) 608
parasites in Minnesota, (50) 197
parasites, pellagra due to, (30) 1788
parasites with reference to uncinariasis, (48) 1137
parasitism in Philippine General *Hospital*, (121) 430
perforation of cecum with ileus in lower, (138) 360

INTESTINE, perforation, typhoid, (15) 808, (74) 1056
perforation, typhoid, with abscess of appendix, (98) 1507
permeability of, in new-born and sick infants, 31—ab
pituitrin in paralysis of, following laparotomy, (157) 277
pneumatosis, (32) 611, (44) 976
pneumatosis, cystoid, (38) 2263
polyposis with 3 intussusceptions, (108) 510
prolapse of lining of lower, (127) 205
prolapse of, treatment in field, (64) 1613
putrefaction in, (59) 1987
putrefaction with convulsions, (49) 2160
resection of large, effect on function, *446
resection of large, primary, (75) 711
roentgenography of stomach and, (75) 1507
roentgenoscopy of acute obstruction of small, 1420—ab
roentgenoscopy of, in chronic constipation, aperient before, (2) 1609
roentgenoscopy of stenosis of small, (37) 1794
roentgenoscopy of stomach and, (28) 809
sarcomas of stomach and small, (157) 361
short circuit for intra-abdominal tubercles, (119) 1428
stasis, *815 873—ab, *1111, *1194, (125) 1882, (33-37) 1981, (116) 2075, (119) 2164
stasis and ulcer of stomach and duodenum, (113) 1983
stasis, chronic, (7) 64, (37) 509, (71, 73) 1326
stasis, chronic, results of neglected cases, (82) 1056
stasis, medical treatment of, 271—ab, *715, (116) 1328
stasis, roentgenology of, (46) 1605, (132) 1882
stasis, surgical theories, *1469
sterilization of, against cholera, (113) 2170
surgery of large, (94) 708
torsion of omentum including loop of, (63) 1238
tract, absorption of fat from, of tuberculous children, (6) 1135
ulcer, diagnosis of postoperative, (102) 615
villi, movements of, (13) 508, 2137—E
vitality of, degrees of detachment of mesentery compatible with, (96) 980
volatile fatty acids in, in normal infants and those with gastro-intestinal disturbances, (227) 363
whey, effect of, on epithelium of, (63) 516
wounds, from shell and bullet, (3) 2310
INTUBATION by general practitioner, plea for early, (104) 2075
instruments, (42) 1885
INTUSSUSCEPTION, appendicitis simulating, (34) 200
intestinal polyposis with, (108) 510
operation, recovery, (90) 1507
spasmodic ileus in infant simulating, *1391
INULIN in diabetic dietary, 326—E
INUNCTIONS with green soap, course of, (79) 1989
IODALIA refused recognition by Council, 2149—P
IODIA, 1071—P
IODIDS, action of, on blood-vessels and heart, 1767—E
and iodin, influence of, on absorption of granulation tissue and fat-free tuberculosis bacilli, (88) 2162
IODIN and iodids, influence of, on absorption of granulation tissues and fat-free tuberculosis bacilli, (88) 2162
animals rendered sterile by, (134) 360
biochemistry of, (66) 969
Boudreau's, treatment of tuberculosis, 263
content of tuberculous tissues, (49) 606
distribution of, 1957—E
elimination of, by healthy and diseased kidneys, (117) 1889

IODIN, exophthalmic goiter and, (80) 712
in abdomen, use of, (83) 807
in plant and animal tissues, distribution of, (66) 969
in prevention of peritonitis in belated cases of intra-abdominal infections, (32) 1696
in specifically inflamed tissues, 409—E
in tuberculosis, intensive nascent, (55, 56) 280
intraperitoneal injection of, for cholera, (18) 1236
ion, action of potassium, sodium iodids and, on heart and blood-vessels, (36) 1325
nascent, in local treatment of uterus, (110) 615
organic, preparations, present status of, *1382
sterilization of hands with, (89) 1063
sterilization of skin by, complete, (2) 507
technic in surgery, (86) 807
test for comparative elimination of lactose and, in various types of nephritis, (67) 711
therapeutic effect of, *1930
thyroid activity and, (67) 1697
thyroid secretion and, 1675—E
tincture of, for wounded to apply *themselves*, 1967
typhoid vaccine sterilized with, (18) 2262
IODOFORM in leprosy, intravenous injections of, (25) 355
IODOTONE refused recognition by Council, 2149—P
IONOMETER for dosage in Roentgen work, (73) 1931
IONS, antagonistic action of salts due to oppositely charged, (19) 2259
IPECAC, emetin and neosalvarsan in entamebiasis, (122) 430
IOWA Board of Health, Clark epigram distributed by, 1490
cities, public health in, 170—E
fighting quackery in, 338—P
medical news, 39, 410, 537, 875, 1039, 1121, 1213, 1401, 1585, 1770, 1961, 2140
sterilization law and Davis case, 340—ME
state board June report, 2153
IRIDOCYCLITIS, mild, optic neuritis *or transferred papilloretinitis* with, (162) 973
salvarsan in, 7 cases, (107) 1054
IRITIS, acute relapsing, autogenous vaccine in, (165) 973
papillary, following injection of salvarsan, (12) 967
toxemic, evolution of, (1) 1507
IRON content of organs in bronzed diabetes, (25) 1995
Cross for German physicians, 1589, 2243
metabolism, influence of spleen on, (72) 891
Solution for Intravenous Therapy refused recognition, 1778—P
ISLANDS of Langerhans and diabetes, 406—E
of Langerhans in pancreas, (194) 429
ISOTONIC solutions, origin of theories of osmotic pressure and, 1520—E
ITALIAN surgery, contemporary, (12) 2075
ITINERANT vendor law upheld, 507—MI

J

JACKSON'S MEMBRANE, (113) 1138, (23) 1879
anatomy and surgical technic in treatment of, (29) 350
JARS, museum, sealing of, 597
JAUNDICE, (118) 359
absence of trypsin in stomach in, (49) 274
agglutination in, *sign of complicating typhoid*, (71) 898
catarrhal, epidemic, (38) 709
catarrhal, in Calcutta, (12) 354
from pressure of echinococcosis in liver, (147) 72
hemolytic, relation of spleen to blood destruction and regeneration and to, (52) 428, (71) 890
hemolytic, splenectomy in, (48) 2166, 2256—ab
hemolytic, splenic leukemia and anemia, (99) 2081
hemolytic, with bile pigment in urine, (13) 2261

JAUNDICE, hypnotic in, fatal action of, (105) 980
JAW, ankylosis of, causing chin to recede, 2 cases, (43) 1060
ankylosis of lower, bilateral, treatment, (239) 363
ankylosis of lower, fascia flap in, (35) 1330
ankylosis of, operative treatment, (139) 1608
associated movement of upper lid and, (3) 894
fracture of, (79) 197
osteomyelitis of upper, in newborn, (55) 896
roentgenogram of, to determine conditions in teeth, *2024
surgical conditions of, (60) 197
tumors, malignant, (39) 1325
undescribed fungus found in pus in chronic process of, (80) 1797
wounds of, dental prothosis for, (71) 1886
JEJUNUM, cancer of middle, (99) 436
ulcer, (73) 202
volvulus of ileum and, with anterior gastro-enterostomy, (67) 606
JELLYFISH, Philippines, dangerous, (142) 1698
JENNER, letter by, 1048
JERUSALEM, international public health work in, 593
JEWS, insanity among, (90) 1425
lung tuberculosis among, 958
post-mortem examinations, (108) 62
JIROCH company, a mail-order fraud, 179—P
JOHNS HOPKINS, gift to, 175
Hospital, surgical operations and dressings at, (57) 509
JOINTS, ankylosed, operative mobilization of, result, (113) 436
aspiration and irrigation of, apparatus for, 268—ab
chondroma in capsule, (72) 202
contracture following trauma of distant, (46) 1239
disease and gastro-intestinal tract, 1877—ab
disease and local infections, (29) 1990
disease, diet which keeps urine alkaline wards off, (137) 205
disease of bones and, diagnostic aids in, (94) 1138
disease, roentgenology of chronic, (48) 1325
disease, treatment and present status of, (150) 276
diseased and traumatic, injurious effects of forcible *passive* motion in, *1383
elbow dislocation, old, reduction by operation, (10) 431, (77) 711
elbow, fractures about, treatment, (63) 1790
elbow, osseous new growths at, *following injuries*, (26) 709
fractures in neighborhood of, (44) 197, (114) 892, *2122
fractures in neighborhood of, plating for, 3 cases, (2) 431
gunshot wounds of bones and, (108) 359, (39) 1510
hip, disease, conservative treatment of, (92) 510
hip, disease of spine and, (1) 1426
hip, disease, tuberculin focal reaction in diagnosis of, (78) 203, (68) 517
hip, dislocations of, (27) 894
hip, dislocations of, traumatic, (22) 1879
hip, fracture dislocation of, (103) 1234
hip, luxation of, as sequel to typhoid, (7) 272
hip, osteo-arthritis of, early diagnosis, (21) 894
hip, snapping, brace *for*, (72) 435
hip, traumatism, in children and adolescents, (26) 1135
hip, tuberculosis of, resection of, (30) 1509
knee, access to, by sawing patella lengthwise, (80) 979
knee, exploration of, (6) 2075
knee, surgery of, *1039
knee, tuberculous, fracture of *femur into*, *1027
loose bodies in, and deforming arthritis, (71) 202
metastatic infections of, etiologic factors, diagnosis and treatment, (141) 1235
operating on, interposition of fat in, (116) 2170

- JOINT pain from irritation of spinal-cord segments by visceral disease, (113) 282
  - phenol and camphor in local treatment of phlegmons in tendon and, (89) 2030
  - rheumatism of, chronic, enlarged lymph-nodes with, (64) 2264
  - sacro-iliac, lesions of, (135) 431
  - snapping, (63) 711
  - surgery of bone and, (101) 62
  - surgical disease of bone and, Swiss sulphur mineral water for, (34) 1141
  - tuberculosis, artificial heliotherapy for, (131) 2170
  - tuberculosis of bone and, sunlight treatment, 348—ab
  - tuberculosis, radiotherapy of lupus and, (118) 2082
  - tuberculosis, results of, (118) 276
  - tuberculosis, surgical and conservative treatment, (66) 2161
  - wounds of, and fracture of bones during Balkan war, (28) 1059
- JONNESCO'S membrane, anatomy and surgical technic in treatment of, (20) 350
- JOSEPH Price elbow, identity of, with Lane kink, (91) 198
- JOURNALS, American medical, and the war, 1632
  - American, of Parasitology, 42
  - Austrian, and the war, 1042
  - effect of war on publication and delivery of, 1486—E
  - medical, and war, 789—E, 957, 1044
  - medical, hints to, on ethical advertising, 835—ab
  - New Orleans Medical and Surgical, advertisements in, 249—E
  - Spanish medical, and manuals, 263
  - state society and its medical, 250—ab
  - where is medical, that fills place of Literary Digest, 1495
- JUGULAR bulb, myringotomy followed by probable injury to, in infant 10 months old, (30) 273
  - vein, resection of, in sinus operation, (28) 1420
- JUVENILE Court and psychiatrist, (189) 973

K

- KAISERLING solution, prevention of molds in, 597, 796
- KALA-AZAR: See also Leishmaniasis
- KALA-AZAR, *1572 (122) 2170
  - blood in, in children, (122) 1706
  - canine, and human disease, (16) 1984
  - in children in Naples, (111) 2169
  - in Madrid, 2156—ab
  - in Nowgong, Assan, (13) 709
  - Indian, behavior of parasite of, in dog flea, (16) 1984
  - segregation and, (15) 1236
- KANGRI burn cancer, (114) 608
- KANSAS medical news, 172, 251, 410, 1401, 1586, 1771, 2237
  - state board February report, 884
  - state board June report, 2153
- KARELL-KUR, (27) 605
- KARELL treatment, 1596
- KARVONEN'S technic, conglutination by, as substitute for Wassermann reaction, (81) 1797
- KAUSCH, nutrient injections of sugar, intravenous and subcutaneous, according to, (123) 2170
- KEATING-HART'S method of fulguration and thermoradiotherapy in cancer, (22) 1700
- KEFIR, fermented medicinal milk, (114) 429
- KELLER'S tuberculin test plate, 2250
- KELLING'S serodiagnosis of gastric cancer, 870—E, 1222—C
- KENTUCKY, health problems of, (66) 429
  - medical news, 251, 328, 693, 790, 955, 1039, 1401, 1586, 1679, 1862
  - *state board June report*, 2250
  - state board of health, work of, in preventing typhoid fever, 1212—E
- KERATECTOMY, trefoil or stellate, for anterior staphyloma, *839
- KERATITIS, gonorrheal, after reinjection of gonococcus vaccine, (137) 437
  - parenchymatous, (11) 967
  - roentgenotherapy of, from acne rosacea, (97) 1243
- KERATITIS, syphilitic, neosalvarsan in, (34) 810
  - traumatic exfoliative, (43) 200
- KERATOCONUS, (118) 1882
  - bilateral, examined automatically, (40) 2072
- KERATODERMIA, blennorrhagica, (14) 1700
- KERATOSES, dermatitis herpetiformis with pigmentation and, (65) 1982
- KEROSENE therapy, 184
- KHAKI dye, for white uniforms, (119) 1983
- KIDNEY, acidosis and dyspnea in diseases of heart and, (43) 968
  - anatomy of, (94) 353
  - blood-flow through, after section of splanchnic nerve, effect of vagus stimulation on, (8) 1503
  - calculus, (28) 1509
  - calculus, anuria due to, (138) 277
  - calculus, case of, (97) 892
  - calculus causing damage to, 1319—ab, (10) 2070
  - calculus, gastro-intestinal disturbance from, (31) 1059
  - calculus, movability of kidney in diagnosis of, (80) 281
  - calculus, perinephritis from perforation by, (45) 202
  - changes in rabbits inoculated with streptococci, (36) 1506
  - circulation in, following ligation of ureter, (78) 890
  - cystic, (43) 66, (104) 1146
  - cystic, chronic interstitial nephritis symptoms similar to, (128) 360
  - cystic, congenital, Rovsing's operation for, *1033
  - cystic disease of, simulating rupture, (53) 2166
  - decapsulation of, and blood-pressure, (100) 1425
  - decapsulation of, in mercurial nephritis, (48) 356
  - diagnostic methods applicable to lesions of ureter and, (117) 276
  - disease and posture, (37) 2160
  - disease, electric conductability of urine in diagnosis of, (55) 976
  - disease, hyperalgetic zones and herpes zoster with, (236) 363
  - disease in children, (59) 1332
  - disease of heart and, (149) 1328, *1453
  - disease of heart and, indigestion forerunner of, (111) 2075
  - disease of heart and, management of, (87) 61
  - disease, surgical, phenolsulphonephthalein test in, (56) 976
  - disease with salt retention, (78) 435
  - displaced, congenitally, operative restoration to normal site, (153) 438
  - fatty changes in liver, heart and, (27) 1985
  - function, Ambard's formula in determination of, (130) 616, (113) 814
  - function and adrenals, 2293—E
  - function, derangement of, (124) 360
  - function, experimental analysis of, (80) 517
  - function in diabetes insipidus, (68) 977
  - function in early and advanced nephritis, value of tests for, (128) 616, (7) 1323
  - function, mixed forms of derangement of, (60) 977
  - function, study of, by means of phenolsulphonephthalein test, (105) 1138, (64) 1430
  - function, tests for, (123) 71, (117) 282, (21) 605
  - function tests in reduction of prostatectomy mortality, (48) 1055, *1909
  - function tests, value of, to surgeon and limitations of tests, (109) 892
  - gangrene, total, from phlegmonous perinephritis, (133) 72
  - genito-urinary infection originating in, (78) 708
  - glomerular and arterial lesion produced in rabbit's, by diphtheria toxin, (42) 706
  - hemorrhage, continuous, painless, treatment, *2110
  - hemorrhage, retrorenal, extensive, (36) 977
  - horseshoe, diagnosis of, (27) 1509
  - horseshoe, separation into 2 normal organs, (235) 363
- KIDNEY infections, bacteriology of, 1786—ab
  - infections, influence of ureteral obstruction on, (31) 509
  - iodin elimination by healthy and diseased, (117) 1889
  - irrigation of bladder and, two-way retention catheter for, (97) 813
  - isolated, technic for examining, (80) 1614
  - lesions of Asiatic cholera and nephritis with reference to acidosis, (4) 1053
  - lesions of liver or, influence of diet on toxicity of substances which produce, *136
  - movable, diagnosis and treatment, (96) 2169
  - movable, diagnosis of form of hydronephrosis due to, (126) 1882
  - movable, hemorrhage from, (103) 2031
  - movable, nephropexy for, (42) 811
  - movable, operative treatment, (66) 898
  - movable, with or without infection, treatment by posture, (9) 1135
  - nephrectomy followed by changes in other, (60) 357
  - operations, bilateral kidney disease with, (84) 979
  - pain, causes of, (136) 1328
  - papilloma of pelvis, 2 cases, (75) 1797
  - *pregnancy and disturbances of*, eye symptoms with, (191) 362
  - pyelography followed by lesions, (157) 1109
  - restriction of fluids in edema not traceable to disease of heart or, (63) 2167
  - roentgenology of disease of, (47) 1885
  - roentgenoscopy of normal ureter and, (32) 509
  - roentgenoscopy of ureter and, variations and disorders, (10) 1135
  - rupture from contusion, (109) 436
  - rupture from slight trauma, (7) 1328
  - rupture, subparietal, (29) 59
  - salvarsan and danger from insufficiency of, (57) 1431
  - sarcoma, primary round-cell, in girl of eight, (67) 898
  - secretion and absorption, morphology of, (83) 435
  - secretion-pressure of, factors in, (100) 2169
  - secretion, thresholds of, (19) 974
  - spontaneous healing of bilateral processes of, (40) 611
  - supernumerary, (30) 1611
  - Suprarenal Capsule: See Adrenal
  - Surgery: See also Nephrectomy;
  - syphilis of, (20) 605
  - *theobromin sodium salicylate and* theocin, effect of, on function of, in acute experimental nephritis, (42) 273
  - transplantation, (86) 1798
  - transplantation, decapsulation and fixation of, experimental, (78) 1797
  - traumatic injury to, pyelography in diagnosis of, (10) 2309
  - tuberculosis, (41) 66, (86) 2074, (68) 2161
  - tuberculosis, bone complications in, (107) 429
  - tuberculosis, diagnosis of, modern, (116) 276, (117) 892
  - tuberculosis, diagnostic difficulties *and surgical problems*, 1416—ab
  - tuberculosis, differential diagnosis of nephrolithiasis and, by roentgenography, *2006
  - tuberculosis of epididymis and, (20) 2310
  - tuberculosis, roentgenography in, (24) 809
  - tuberculosis, serodiagnosis of urine not reliable in, (130) 436
  - tuberculosis, 20 cases of, (113) 430
  - tuberculosis, unilateral, (54) 275
  - varix, resection for, (13) 1236
  - vascular hypertony of, (70) 517
  - vascular response of, in acute uranium nephritis, (83) 1425
- KIDNEY-WORM in swine in Philippines, pathologic changes, (141) 1698
- KILLIAN method of suspension with apparatus, *1923
- KINEMATOGRAPHIC observations on cerebellar phenomena, cerebellar symptoms and localization, *1813
- KITCHEN sink, elevation of, aid to comfort of houseworker, 38—E
- KNAPP medal for research in ophthalmology, awarding of, 42
- KNEE-JOINT, access to, by sawing patella lengthwise, (80) 979
  - ankylosis of gonococcal origin, operative treatment, (27) 1039
  - ankylosis of, Murphy's method, (32) 65
  - contracted at acute angle, large trapezoidal resection of, (52) 896
  - crippled, osteotomy for, (37) 976
  - exploration of, (6) 2075
  - injuries to, in sports, 592
  - injury to condyle, Roentgen findings in, (55) 2077
  - internal derangements of, (12) 803, (32) 1237, (138) 1608
  - surgery of, *1029
  - tuberculous, fracture of femur into, *1027
- KNOPF'S prize essay as aid to tu*berculosis campaign*, 2143
- KNOWLTON-STARLING isolated heart-lung preparation for testing heart action of drugs, (96) 970
- KOEBERLE, Dr., honor to, 335
- KONIG, PROF., death of, in field, 1569
  - *not dead*, 1682
- KOREA, medical experiences in, (30) 706
  - medical regulations in, 696
- KORSAKOW'S psychosis in pregnancy, (33) 1324
- KRAEPELIN'S conception of paraphrenia, *766
- KRONIG, PROF., *Cleveland Medical Journal* on twilight sleep and, 601
- KUBISAGARI disease, clinical and bacteriologic study of, (33) 355
- KYPHOSIS, displacement of internal organs with, (35) 1794

L

- LABOR: See also Obstetrics
- LABOR, attendance by physician on wife in, 2250
  - bacillus coli communis infection complicating pregnancy and, medical and surgical treatment, (107) 198
  - blood changes in lactation, first menses and, (62) 812
  - contracted pelvis in pregnancy and, treatment, (5, 6) 1508, (76) 1614
  - danger signs in, and how to meet them, (90) 708
  - eye injury during, (31) 1428
  - heroin in, (74) 1982
  - intra-uterine crying of child during, 184—C
  - management of, in country practice, (122) 1234, (89) 1697
  - management of normal pregnancy and, (43) 1981
  - mechanism of, with fracture of acetabulum and dislocation of head of femur, (90) 2080
  - membrane retention after, (45) 201
  - operations for uterus displacement and subsequent, (114) 1608
  - painless, Cosmopolitan and Vance Thompson on, 2233—E
  - pains, absence of, after removal of both breasts, (7) 1694
  - rapid, with spinal-cord disease, lack of inhibitor reflex cause of, (64) 67
  - rubber mitten for normal, (103) 1243
  - rupture of symphysis pubis during, (38) 1506
  - *scopolamin-morphin anesthesia in*, (68) 707, (121) 1327, 1410—C, (11) 1694, (57) 1790, (94) 1881
  - scopolamin-morphin anesthesia in, Cleveland Medical Journal on Prof. Kronig and, 601
  - scopolamin-morphin anesthesia in, from hospital viewpoint, (73) 1507
  - scopolamin narcophin seminarcosis in, (10) 1694
  - third stage, treatment of, (171) 285

LABOR, toxicity of urine, serum, and colostrum in pregnancy, puerperium and, not proportional to clinical picture of eclampsia, (64) 812
  vaginal douches, medicated, during pregnancy and, (53) 1331
  vaginal examinations during, danger of, (48) 889
LABORATORY aids to diagnosis, neglect of, (144) 971
  and clinical work, (8) 64, 964—ab
  methods general practitioner should use, (71) 275, (152) 1699
  research, at Bath, opening of, 43
LABYRINTH and cerebellum, (48) 1880
  bilateral specific disease of, with left facial paralysis of peripheral type, (98) 62
  functional tests of static, in neurologic diagnosis, (126) 971
  operation, indication for, (18) 273, (45) 889
  semicircular canals and function of equilibrium, (25) 273
  semicircular canals, investigations and clinical applications, (53) 1605
LABYRINTHITIS, diffuse serous, complicating acute purulent otitis media, (31) 1421
  ethmoid, *2100
  purulent, acute suppurative otitis media and leptomeningitis without rupture of tympanic membrane, (17) 278
  suppurative, cavernous sinus thrombosis complicating, (23) 1420
  suppurative, diagnosis of endocranial' complications of, (14) 273
LACRIMAL apparatus, functional tests for, (88) 1798
  duct, operations on, (71) 1144
LACTAGOGS, action of, (93) 1063
LACTATION, blood changes in labor, first menses and, (62) 812
  breast murmurs of (24) 1884
  in wet-nurses, (48) 612
LACTIC ACID: See Acid, Lactic
LACTOSE and sodium citrate in infant feeding, (73) 1614
  content of human milk, (93) 1888
  influence *of, on metabolism of* infant, (4) 1135
  or glucose in urine, 1130
  test for comparative elimination of iodin and, in various types *of* nephritis, (67) 711
LAENNEC and Auenbrugger, state of clinical medicine in time of, (64) 1137
LAGRANGE sclerectomy and Elliot *trephine operation for* glaucoma, (103) 608
LAHORE sore, 4 cases, (12) 1700
LAMINECTOMY for spinal tumor, (27) 1605
  for spondylitic paralysis, (71)435
  plastic bone operation after, (240) 363
LAMP, pocket *flash, for transillumination*, 321—ab
LANDAU'S color test for serodiagnosis of syphilis, 1317—ab, (49) 1986
DE LANDETA, Juan B., presentation of souvenir to, 333
LANDOUZY'S typhobacillosis, (91) 282
LANE'S auto-intoxication complex and manifestations of senility, (84) 708
  kink, identity of, with Joseph Price elbow, (91) 198
LANGE'S colloidal gold reaction in cerebrospinal fluid, (120) 205, (7) 426, (80) 1881
  gold-sol test in general paralysis, (81) 1881
LAPAROTOMIES, (22) 432, (19) 2165
  abdomen distention following, (8) 2070
  anesthesia, local, (106) 436, 495
  antitrypsin findings and leukocytosis at, (34) 1428
  at Abingdon hospital, (128) 1698
  blocking nerves for, (57) 516
  incision, high-curving, (125) 71
  pituitrin in intestinal paresis following, (157) 277
  postoperative complications and treatment, (136) 199, (137) 431, (17) 605
  prophylactic treatment with extract of leeches, preliminary to, (75) 357
  sponges in, improved technic for watching, (150) 206, (65) 1144
LARYNGECTOMY for tumor, 2 cases, (74) 1797
  total, for cancer, (86) 1146
LARYNGITIS, submucosa subglottica acuta, (60) 707
  tuberculous, treatment of, by Pfannenstill and Friedmann technics, (103) 70
LARYNGOCELE, (105) 282
LARYNGOFISSURE for cancer of larynx, results of, 292, (13) 808, (73) 1056, (141) 1882
LARYNGOSCOPY and tracheobronchoscopy, direct, (91) 435
  direct bronchoscopy and, (87) 970
  direct, with modified Bruning's bronchoscope, (55) 1232
  indirect and direct, *1918
  suspension, foreign body in larynx removed by, (26) 432
  suspension, practical use, (5) 63, *(12) 513, (4) 974*
LARYNGOTRACHEAL stenosis, subglottic, dilating and speaking cannula for, (23) 975
LARYNX, anesthetizing, Frey's method of, (18) 199
  bronchoscope in direct examination of trachea, bronchi, esophagus and, (62) 707
  cancer, (100) 436
  cancer, intrinsic, (22) 64, *989
  cancer, intrinsic, results of operation (laryngofissure) for, (13) 808, (73) 1056, (141) 1882
  cancer, operative treatment, (124) 1890
  cancer, radium therapy of, (32) 273
  chondroma in, (107) 980
  diphtheria, deferred death after tracheotomy for, (21) 513
  foreign body in, removal by suspension laryngoscopy, (26) 432
  foreign body, sand-spur, removal, report of 2 cases, (29) 605
  gumma of, tracheotomy necessary, (19) 199
  intubation of, advantages of, over tracheotomy in laryngeal diphtheria, (33) 895
  lupus of, primary, (74) 197
  papilloma of, *2207
  paralysis of, nerve grafting for, (104) 1888
  polypi, recurring, with tetany, case of, (23) 273
  roentgenography of trachea and, *1827
  sunlight therapy of, (51) 66
  transverse resection of esophagus and, (88) 203
  tuberculosis, frequency in Massachusetts, (47) 274
  tuberculosis treated at Rutland state sanatorium, 241 cases, (48) 274
  tuberculosis, treatment in Massachusetts state sanatoria, present status of, (46) 274
  tuberculosis, tuberculin in, (3) 512
  tumors, benign, indirect intralaryngeal method for removal, *1922
  tumors, technic for removal of, (59) 707
  tumors, unusual, (61) 197
LAUNDRESSES, negro, tuberculosis among, (82) 1233
LAURENT on military surgery in Balkans, 405—E
LAVAGE, studies of methods of, (109) 1983
LAW, A. R., asks druggists to become quacks, 1595—P
LAW and medicine, (43) 1885
  authorizing revocation of licenses *for advertising relative* to diseases of sexual organs, nonvalidity of, 435—Ml
  model state, for report of controllable diseases, *1845
  protection of public by, (71) 509
  supreme civic, (120) 1234
LEAD absorption from drinking water, *120 cases of*, (36) 709
  and opium wash, use of, 421
  meningitis, recurrent, due to, in child of five, (6) 1787
  poisoning, electrolytic prevention of, (25) 1611
  poisoning, electrolytic treatment of, (26) 1611
  poisoning, examination of 100 painters for evidences of, (6) 194
  poisoning in smelting and refining industry, 1482—E
  poisoning in United States, (10) 350
LEAD poisoning, Wassermann reaction in, 184
  poisoning with paralysis of external ocular muscles, *403
  sulphid ores and lead sulphid, solubility of, in human gastric juice, (92) 970
  test for, practical, 1495
LEATHES, Prof., leaves Toronto, 1309
LECITHIN, distribution *of* fat, wax-splitting ferments and, in organs, (71) 1331
  method for preparation of, (26) 278
LECTURER'S fees, transmutation of money for baths into, 787—E
LEECHES, (4) 2310
  extract of, *prophylactic treatment* with, preliminary to laparotomies, (75) 357
LEFT hand, training of, 799—ab
LEG, amputation of, (24) 967, (23) 2310
  bromoderma of, *635
  circulatory and trophic disturbances of, (12) 2309
  congenital deficiency of radius and homologous condition in leg, (33) 200
  cross sections *of* arm and, *(83)* 2079
  fracture of, pillow extension bandage for, (39) 1985
  localization of function in spinal cord for muscles of hand, diaphragm and, (77) 1145
  mutilating disease of, (18) 975
  paralysis, familial transient, in northwestern France, (16) 974
  ulcer, (61) 806
  ulcer, treatment of, *387
  varices of, combination treatment of, (64) 613
LEGISLATION and medical profession, (10) 513
  and organized medicine, (26) 605
  factory, rise and progress of, (8) 974
  medical, (93) 892
  medical, and medical charity, (66) 707
  social, influence and responsibili*ties of medical profession* in administration and, (13) 199
  state medical, from viewpoint of physician, (81) 1790
LEISHMAN ANEMIA: See Anemia, Leishman
LEISHMANIA donovani, production of localized lesion by, in macacus sinicus, (12) 708
  tropica, fatal case of, (25) 2165
LEISHMANIASIS: See also Kala-Azar
LEISHMANIASIS, experimental, in *monkey and mouse induced* by parasites in culture, (11) 708
  in Russia, (260) 364
  superficial, tartar emetic in, 1051—ab
LENSES, (102) 1234
  colored, to cut down heat radiation and neutralize ultraviolet and infra-red light *rays*, (97) 1233
LENTICULAR degeneration, progressive, (67) 353, *1380
LEONTIASIS ossium, case of, (84) 1327
LEPERS, care of, 332
  colony of, 174
  Culion, holiday gifts for, requested, 1774
  home for, in London, 414
LEPROSY, bacteriology of, (136) 1699
  cause, (187) 439
  chaulmoogra oil mixture for, (8) 2258
  government care and control of, *297, *298
  iodoform in, (25) 355
  modern, non-identity of Biblical leprosy and; (118) 1139
LEPTOMENINGITIS, acute suppurative *otitis media and purulent* labyrinthitis without rupture of tympanic membrane, (17) 278
  hemorrhagic, from anthrax bacillus, (116) 814
LERI'S *arm* sign in brain disease of central nervous system, (166) 438
LEUKEMIA, (45) *710*, (92) 2081
  abnormal proliferation of myeloid tissue without blood-picture of, (120) 70
  acute, (115) 1698
  acute, treating threatening conditions in pseudoleukemia, hemorrhagic diatheses and, (87) 1241
LEUKEMIA, analysis of 59 cases, (42) 432
  antibodies in, *production of*, (91) 2081
  benzol and thorium x in, (198) 440
  benzol in, *143, (196) 440, (98) 2074
  hemolytic jaundice and splenic anemia, (99) 2081
  in *infants*, (85) 1703
  intramuscular injections of blood in, (51) 1143
  lymphatic, in child of 3 years, (6) 512
  myelogenous, acute case of, (110) 2163
  splenomedullary, ruptured extra-uterine pregnancy complicated by, (5) 1609
  subacute macrolymphocyte, roentgenotherapy in, (79) 1145
  treatment of, (93) 1242
LEUKOCYTE count, differential, and interpretation, (82) 1507
  count, differential, improved technic for, (118) 616
  count in miliary tuberculosis, value in diagnosis, (91) 713
  count, normal differential, (18) 1504
  count, postoperative, with reference to appendicitis, (135) 1234
  differentiation of, and origin of blood-cells, (81) 1507
  extract of, in pneumococcus infections in rabbits, (25) 1980
  extract of, in pneumonia, (30) 1980
  extract of, production, action and therapeutic *effects of*, report on, (15) 604
  granules, lipoid substances of, seem to be phosphacids and ethers, (88) 1888
  inclusions in scarlet fever, (99) 1705
  variations of, in diseases, (4) 63
LEUKOCYTOSIS at laparotomies and antitrypsin findings, (34) 1428
  digestion, in differentiation of stomach ulcer and cancer, (77) 1062
  from cold, (185) 286
LEUKOPLAKIA, (26) 895
LEUKORRHEA, chronic, pathology and treatment of, (107) 511
  specific, treatment, (105) 1507
LEUKOSARCOMATOSIS, (6) 354
LEVATOR ANI muscle, suture of, in perineorrhaphy operation, (18) 808, (75) 1056
  versus bulbcavernosus in perineorrhaphy, 1047—C
LEVULOSES, *serum* and liver substances as, in trypanosomiasis, (55) 706
LEWIS, Thomas, London heart specialist, *lectures in America*, 1404
LIABILITY, declaration of, against hospitals with *charitable* foundations, 966—Ml
  for causing *malaria*, 2255—Ml
  for operations performed without consent in charitable hospitals, 702—Ml
  for patient under own physician getting poison in hospital, 1784—Ml
  for wrongful removal of typhoid patient, 2255—Ml
  malpractice of surgeon employed by company, 425—Ml
  of charity hospital *for* injury *from hot-water* bottle, 506—Ml
  of malpractice and evidence, 1226—Ml
  Roentgen ray, 1875—Ml
LIBERAL arts and medicine, combined course in, 675
LIBRARIES, medical, (89) 892
  medical college, value *to* student, *655
  reference, and preparation of medical papers, (83) 1697
LICENSE for advertising relative *to diseases of sexual* organs, non-validity of law authorizing revocation of, 425—Ml
  obtained in another *state to* evade requirements, recognition refused, 1498—Ml
  of physicians obtaining fees on representations that incurable *diseases* can be cured, validity of statute providing for revocation of, 54—Ml
  of practitioners of specialties, validity of statute providing for, 1052—Ml

LICENSE, practicing medicine without, punishable under statute, 1784—Ml
  provision for revocation of, for unprofessional and dishonorable conduct construed and applied, 189—Ml
  state licensing retired medical officers, 1495
LICHEN planus of tongue, (51) 606
  ruber planus, rare form of, (20) 199
  vaccine, in natives, (19) 64
LIFE and nostrum advertising, 1211—E, 1219—P, (80) 1233
  efficiency and quality of, (109) 1327
  expectancy, alcohol and tobacco, (80) 1607
  problems of, (93) 1881
LIGAMENTS, Broad: See Broad Ligament
LIGATURE, ready-made, 885—ab
LIGHT, artificial, in surgical tuberculosis, (180) 361
  artificial, of hospitals, (116) 971, (79) 1137
  destruction of bacteria through action of, (6) 2159
  effect of, on eye, 484—E, (134) 971, 1603—ab
  efficiency of eye under different, (63) 1055
  reactions of plants and animals to, new experiments on, (78) 517
  use and abuse, *(84) 1607*
LIGHTNING stroke, (137) 1328
LIMBS, artificial, suspension and points of support for, (98) 436
  contraction of upper and lower, after Still's disease, (13) 278
LIME, inorganic salts of phosphoric acid and, nutrient value of, 581—E
  sterilization of drinking water, (177) 439
LIMULUS polyphemus, proteins of blood of, (66) 1232
LINCOLN, Abraham, diagnosis of heterophoria and diplopia from portrait, (164) 973
LINEN and flax workers, health of, 1413—ab
LINGUAL artery, post-mortem ligation of, (110) 1057
LINITIS plastica, (42) 1231
LINT as substitute for ordinary dressing, (44) 2166
LIP, chancre of, with early involvement of nervous system, (97) 62
  hemangioma of tongue and lower, successful excision, (72) 357
  reduplication of, and primary hypertrophy of gums, (16) 1700
  syphilitic lesion, primary, from practice of holding pencil between, *(63) 613*
  tumors, composite or fibro-epithelial, (142) 276
LIPASE, soluble, and lipase liberated during autolysis of rapidly growing tuberculosis bacilli, relative activity of, (82) 2162
  soluble, occurrence of, in broth cultures of tuberculosis bacilli and other acid-fast bacteria, (81) 2162
  specificity and thermostability of, developed during growth of tuberculosis bacilli in media of varied composition, (83) 2162
LIPEMIA, explanation of, 1208—E
  in diabetes mellitus, (124) 1706
LIPO-AMLYOID degeneration, (43) 706
LIPOCHROMES, 948—E
LIPOIDS as inhibitors of anaphylactic shock, (44) 1789
  effect of human serum in scarlet *fever not due to,* (93) 713
  in genital organs, (172) 285
  of tubercle bacillus, experiments in anaphylaxis with, (46) 707
  substance in blood-corpuscles, (151) 206
  substances of leukocyte granules seem to be phosphacids and ethers, (88) 1888
LIPOMA, inguinal, (80) 1057
  of epididymis, (233) 363
  neck, diffuse, operative treatment, (125) 1890
  subfascial, in foot, sciatica cured by removal of, (153) 206
LIPOMATOSIS and adipose, (122) 971
LIQUID chlorin and water sterilization, 327—E, (46) 2073
LISTER, *character of, 1129—ab*
LITHIASIS: See Calculus
LITHIUM salts in uric acid diathesis, 184
LITHOPEDION, Dr. J. B. Murfe's case of, (119) 608
  in *extra-uterine pregnancy,* (99) 1507
LITTEN'S sign, 1411
LITTER, new method of carrying patient without, (85) 1327
LIVER, abscess, (67) 275
  abscess, amebic, emetine in, (131) 1983
  abscess, tropical, diagnosis and treatment of, (28) 432
  abscess, tropical, pleural and pulmonary complications of, 27 cases, (33) 350
  acute destructive lesions of, effect of, on its *efficiency* in reduction of ammonia content of blood, (67) 970
  and pancreas syndrome in diabetes, (96) 2081
  and serum substances as levuloses in trypanosomiasis, new, (55) 706
  atrophy of, subacute, (4) 1787
  atrophy of, subacute, in children, (5) 1426
  bile retention as sign of injury of, (62) 356
  bile retention from functional incapacity of, (68) 434
  blood-dust in diagnosis of disease of, (94) 518
  blood outflow from, as affected by *variations in conditions of* portal vein and hepatic artery, (24) 888
  blood-vessels, action of poisons on, (97) 1990
  cancer, primary, in child 3 years old, (28) 611
  cancer, primary, operative treatment, (38) 1330
  cirrhosis of, and tuberculosis, (37) (37) 611
  cirrhosis of, modification of circulation in, with ascites, (43) 895
  cirrhosis of, with intoxication psychosis, (9) 703
  congenital lesions, in new-born infant and in athrepsia, (36) 514
  congestion, acute, (175) 361
  cysts, (116) 608
  cysts, non-parasitic, (45) 279
  differential diagnosis of cases of diseases of, in Stanford wards of city and county hospitals, (35) 427
  dyspepsia cause of intestine and liver trouble, (98) 814
  echinococcosis of, diagnosis of, (99) 1990
  echinococcosis of, jaundice from pressure of, (147) 72
  echinococcosis of, perforating into bile passages, operative treatment, (59) 434
  edema with disease of, (47) 811
  epinephrin, action of, on, (179) 439
  fat in, in chronic alcoholism, (93) 1616
  fatty changes in heart, kidney and, (27) 1985
  function, alimentary sugar test of, (121) 71
  function as influenced by ductless glands, (41) 1136
  function, studies in, *1533
  function tests, (100) 1607
  glycogen content of, and sugar content of blood, influence of thyreoparathyroidectomy on, (64) 61
  heart disease and, (170) 439
  hemorrhage of heart and, muscle flaps to arrest, (74) 357
  in urea formation from amino-acids, importance of, (46) 605
  insufficiency, chronic, fibrinolysis in, (55) 2161
  lesions of kidney or, influence of diet on toxicity of substances which produce, *136
  lesions with amebas 7 and 18 years after latent infections, 2 cases, (33) 810
  lobes of, independence of, (19) 888
  necrosis of, experimental production of, in guinea-pig, (76) 890
  obliteration *of space below,* with cholestectomy, (48) 66
  operations on bile tract, stomach and, (73) 509
  pathologic changes in, from passive venous congestion experimentally produced, (28) 1985
LIVER, pathology of, and tests of functional capacity, *(70) 1240*
  retrogressive changes in fetal blood-vessels and suspensory ligament of, (4) 1323
  roentgenotherapy of spleen and, (108) 204, (37) 1429
  rupture, traumatic, laparotomy, recovery, (15) 2261
  stellate cells of spleen and, (90) 435
  syphilis, acquired, and, (98) 198
  syphilis of, imitating cirrhosis, (1) 967
  urea *and total nitrogen* in blood in disease of, *2214
  urea formation and, 1482—E
  urobilinuria in disease of, (23) 1059
  weight of brain and, in psychoses, (56) 606
LIZARD tubercle bacilli in tuberculosis treatment, (54) 612
LOCO-WEED DISEASE, is it a myth? 1050—ab
  of sheep, studies of, (31) 889
LOCOMOTOR ATAXIA: See Tabes *Dorsalis*
LODGE PRACTICE: See Practice, Lodge
LOEWI'S reaction in pancreatic lesions and urinary diastase test, (7) 199
LOFFLER and Buck, itinerant specialists, 337—P
LONDON letter, 43, 176, 254, 333, 414, 494, *591*, 696, *793*, 878, 958, 1125, 1216, 1405, 1590, 1683, 1867, 1966, 2054, 2144, 2240
  offer from university college of, to French students and professors, 1591
  School of Tropical Medicine, 176
LONGEVITY, means and methods to increase, (35) 196
LOS ANGELES deaths from intraspinal neosalvarsan injections, (42) 60
LOUISIANA, higher preliminary *requirements for education* in, 1873
  medical news, 172, 251, 790, 1039, 1121, 1213, 1306, 1586, 1679, 1862, 1961, 2051
  State Medical Society, Pan-American Surgical and Medical Journal new organ of, 249—E
LOURDES, visit to, (104) 198
LOUVAIN University, faculty of medicine in original, 1426-1797, (69) 1982
LUETIN REACTION: See Reaction, Luetin
LUMBAGO, acute, manipulation and movement in, (9) 1508
LUMBAR PUNCTURE: See Rachicentesis
LUMINAL poisoning, case of, (214) 362
LUNCHES for schoolchildren, (85) 1982, 2234—E
LUNG abscess, (161) 1608
  abscess and bronchiectasis, 14 cases, (31) 350
  abscess and gangrene, (44) 352
  abscess, artificial pneumothorax in, *(80) 1507*
  abscess at Massachusetts General Hospital, (63) 1424
  abscess, choice of anesthetic in operation for, *(9) 802*
  actinomycosis, primary, in child of ten, (1) 887
  anthracosis, (28) 1788
  blood-vessels in, action of poisons *on,* (255) 364
  cancer, primary, *1364
  catarrh of apex of, examination for, (46) 1510
  cavities in, surgical treatment of, (32) 1141
  Compression: See Pneumothorax, Artificial
  decortication of, (134) 1882
  diagnosis of, apical disease, (48) 1330
  disease, (37) 2076
  disease, non-tuberculous, (93) 2081
  dulness over sound apex in children, (75) 435
  echinococcosis, (183) 286
  edema, treatment of, (71) 68
  examinations, sputum trap for, (113) 892
  fibrosis, bacillus Friedlander vaccine for, (28) 355
  filaria bancrofti embryo recovered from blood of, in daytime, (28) 200
LUNG, gunshot wounds of, (31) 2263
  Hemorrhage: See Hemoptysis
  hexamethylenamin in acute disease of, (88) 1615
  mechanical predisposition of apex *of, to disease, (50) 2166*
  mycosis of, (114) 1889
  percussion of, *1378
  physical signs and Roentgen-ray findings in healthy adults, (33) 2072
  purin enzymes in, in pneumonia, (85) 435
  resection of lobe of, (72) 1432
  surgery of, (108) 1990
  surgery of, experimental research on, (85) 203
  surgery of heart, trachea and, experimental, *1338
  syphilis, (17) 1135
  syphilis simulating lung tuberculosis, (57) 1137
  thyroid extract, action on, (66) 1238
  Tuberculosis: See Tuberculosis, Lung
  tumors, (32) 1884
  tumors, diagnosis of, (127) 283
  tumors in mice, (48) 706
  vascular conditions altered in, effect on respiration of, (91) 970
LUPUS, (117) 616
  antigens, partial and antipartial, in lung tuberculosis and, (92) 358
  artificial heliotherapy for bone and joint tuberculosis and, (131) 2170
  bacilli tubercle emulsion in extensive, (84) 1507
  Friedmann's treatment of, unfavorable experience with 7 cases, (56) 1238
  larynx, primary, (74) 197
  parasitic lesions of skin and, treatment, (23) 1135
  radiotherapy of bone and joint tuberculosis and, (118) 2082
  scars, malignant tumors on, (24) 513
  syphilitic origin, (38) 1429
  treatment, (9) 1699, (59) 2078
  tubercle bacilli isolated from, investigations on strains, (36) 279
  vulgaris, trichloracetic acid in, *1352
LUTEIN, 948—E
  significance of word, 1119—E
LYE injury to esophagus, (96) 1146
LYMPH, coagulation of, (23) 2070
  flow, pleural, (128) 1328
  gland substance, digestion of, not specific in dialysis serodiagnosis, (100) 1705
  nodes and lymph-glands, 1411
  nodes, bronchial, in infants and children, diagnosis, significance, and treatment of, (44) 889
  nodes, bronchial, tuberculosis, clinical *and* roentgenographic study, (11) 1324
  nodes, bronchial tuberculosis, infantile, healing process of, (4) 1235
  nodes, enlarged, with chronic rheumatism of joints, (64) 2264
  nodes, neck, chronic disease of, (89) 1888
  nodes tuberculosis in children, bacteriologic study of, (3) 1235
  nodes, tuberculosis of tracheobronchial, in children, (150) 1328
  nodes, tuberculosis, roentgenotherapy of, (78) 978
  nodes, tuberculous, mesenteric thrombosis originating from caseating, in youth, (3) 807
  system, development of, in amniotes, (1) 603
LYMPHADENOMATOUS structures of body, diphtheroid organisms isolated from, (20) 1324
LYMPHADENOSIS, acute aleukemic, (182) 439
LYMPHANGIECTASIS, congenital edema due to, (106) 814
LYMPHANGIO - ENDOTHELIOMATOUS growths, diffuse, of peritoneum, (43) 1421
LYMPHANGIOMA circumscriptum, case of, (52) 509
  cystic, of great omentum, (5) 2309
LYMPHATIC origin of diseases and new growths, *1268
LYMPHOCYTE, *granulations* in, taking blue stain, (248) 363
  increase and altitude, (51) 1423

LYMPHOCYTE picture and albumin contents of sputum in early recognition of lung tuberculosis, *2283
LYMPHOCYTOSIS sign of constitutional derangement in chronic diseases of digestive tract, *1104
LYMPHOGENOUS infection of central nervous system, (1) 1791
LYMPHOID TISSUE and resistance to experimental tuberculosis in mice, (76) 1106
  proportion at various ages, (199) 286
LYMPHOMATOSIS, leukemic, with paroxysmal hemoglobinuria, (111) 518
LYMPHOSARCOMAS, morphology of, (77) 1614
LYPEROSIA irritans, poliomyelitis transmitted by bite of, (24) 803
LYSOFORM and Lysoform Crude refused recognition by Council, 1870—P

M

McCORMICK, Donald, swindler, soliciting subscriptions, 1041
MACNAB, Angus, Capt., death of, 2055
MADRID, new institute of hygiene at, 1681
MAGNESIA, milk of, 1130
MAGNESIUM in tetanus, (95) 614, (57) 2078
  metabolism of calcium, sulphur, phosphorus, nitrogen and, in acromegaly, (35) 1135
  salts, anesthetic action between ether, chloroform and, 584—E
  salts, hyaline casts in urine in dogs, produced by, 170—E
  sulphate in purulent cerebrospinal streptococcic meningitis, (47) 2151
  sulphate, intraspinal, in tetanus, (34) 2312
  sulphate, subcutaneous injections of in tetanus among wounded, (30) 2263
MAIGNEN Antiseptic Powder, 1778—P
MAIL-ORDER fraud, Jiroch company, 179—P
MAINE medical news, 2237
  state board July report, 1972
MAIZE-ALBUMIN, protective ferments against, in serum of pellagrins, (78) 1241
  kernel, proteins of, nutritive properties, (58) 60
MALARIA, (59) 1137, 2133—T
  blood examination in, place for, (145) 1328
  campaign against, 2158—ab
  campaign against, among troops in Vera Cruz, 256
  carriers, 2158—ab
  chronic, with enlarged spleen, useful prescription in, (27) 2165
  diagnosis, early, (72) 806
  duck as preventive against yellow fever and, *1203, 1410—C
  educational methods in work against, (14) 1695
  epidemic at Greenwich, Conn., (21) 1324
  epidemic or fulminant, (8) 1984
  epidemiology of, sanitary survey of San Jose estate with reference to, (95) 510
  Hemoglobinuria: See Blackwater Fever
  hemolytic, acute, (56) 516
  herpes zoster and, (67) 1137
  immunity in, (8) 1984
  impounded water and, 2158—ab
  in infant, congenital, (104) 1334
  in Italy in 1912, (105) 2081, 2144
  in Madras City, (16) 709
  in southern Rhodesia, (114) 1234
  investigations in United States by U. S. P. H. Service, (15) 1695
  latent atypical, complicating puerperium, *2215
  liability for causing, 2255—MI
  medical inspection and education of schoolchildren most probable solution of hookworm and, (17) 1054
  meteorology of, (24) 2165
  neosalvarsan in, (107) 1057
  ophthalmoplegia, isolated right, due to, (73) 1144
  parasite of bat, (13) 1984
  pernicious, (92) 1507
  plasmodium falciparum and, (27) 709
  prevalence and manifestations of, (56) 1232
MALARIA prevention and drainage of swamps, (16) 1695
  prevention in army of Indian Empire, (17) 1236
  prevention, rôle of certain mosquitoes in, (100) 353
  quinin and, 2158—ab
  quinin, intramuscular injection superior to administration by mouth, (6) 1053
  quinin prophylaxis of, (121) 1983
  quininization for, value of, *1931—MI
  rheumatic, (18) 1695
  splenectomy complicated by, (134) 1983
  surgery and, 1317—ab
  Wassermann reaction in, (41) 200
MALE-FERN, fatal poisoning from, used as vermifuge, *242
  fatal poisoning, in clinically latent Addison's disease, (47) 2264
MALIGNANT GROWTH: See Tumor, Malignant
MALINGERING, 879—ab
MALNUTRITION, composition of body in, (80) 1703
  in adults, (63) 1701
MALPRACTICE, actions, origin and remedy, (76) 1982
  admissible evidence in action for, 344—MI
  in fracture of clavicle, damages and evidence in action for, 1691 MI
  in treatment of gunshot wound, 800—MI
  liability and evidence, 1226—MI
  liability of surgeon employed by company, 475—MI
  suits and expert testimony, (151) 972
MALTA FEVER, complications and unusual symptoms, (159) 206
  germs, bile favorable culture medium for, (163) 438
  in Peru, 135—ab
  micrococcus in, virulence of, (119) 2170
  phlebitis in, (155) 206, (98) 1888
  psychoses in course of, (154) 206
MALTED food company, Thompson's, 1494—P
MANDIBLE: See Jaw
MANILA, death-rate of, 333
MANIPULATION, treatment by, (60) 606
  treatment by adjustment and, practicing of medicine, 2067—MI
MANITOBA, higher entrance standards in, 1224
  sanatorium for tuberculosis, 591
MANSLAUGHTER in failure of parent to provide for child, 2308—MI
MANURE and flies as a nuisance, 43, 799—ab
MARCH, soldiers', 1775
  soldiers' feet on, care and treatment of, (42) 2166
MAREY, Professor, monument to, 45
MARINE biological laboratory and medicine, 870—E
MARRIAGE, medical examination before, advisability from standpoint of woman, (101) 892
  of drugged physician to nurse annulled, 2307—MI
  of unfit, (33) 706
MARYLAND homeopathic June report, 1496
  medical news, 39, 172, 251, 329, 410, 587, 875, 955, 1039, 1121, 1213, 1306, 1401, 1771, 1863, 1961, 2051, 2237
MASOCHISM, infantile roots of, (121) 971
MASSACHUSETTS General Hospital, mediomechanical department in, *1733
  medical news, 39, 173, 410, 491, 693 790, 875 1040 1306, 1586, 1771, 1863, 2051, 2237
  Medical Society, Boston Medical and Surgical Journal official organ of, 250—E
  state board May report, 1496
MASSAGE in after-care of gunshot wounds and fractures, (51) 1701
  in diagnosis and treatment of muscular rheumatism, (70) 2079
  self, and exercise, for chronic constipation, *1669
MASTITIS after Friedmann's tuberculosis treatment, (126) 436
  bovine, experimental production of, with hemolytic streptococci of human origin, (33) 805
  chronic cystic, (19) 1879
MASTITIS, lactantia, (78) 1056
  streptococcus, epidemic of streptococcus sore throat in Jacksonville, Ill., traced to milk of cows with, (26) 2071
MASTOID, cholesteatoma of, (132) 1698
  complications, (156) 972
  disease, acute, due to acute purulent otitis media, laboratory aids in diagnosis of, (85) 275
  operation, blood-clot method in, (50) 279
  operation for tolerance of protheses in diminished hearing after middle-ear suppuration, (87) 353
  operation, radical, myiasis of ear with, *479
  operation, radical, when imperative? (19) 273
  operation, result of 7, performed by Mr. Heath, (15) 273
  operation, simultaneous bilateral cavernous sinus thrombosis 12 hours after, (32) 1421
  process, sarcoma of dura from, 2 cases, (26) 1420
  process, wounds of dura in operation on, treatment, (86) 429
  roentgenotherapy, antero-posterior position for, (9) 1230
  roentgenotherapy, practical results, (8) 1230
MASTOIDECTOMY, bilateral, diabetes mellitus after interval operations of unilateral exenteration of ethmoid, sphenoid and maxillary sinuses and, (89) 1233
  meningitis complicating, (34) 1421
MASTOIDITIS, acute, surgical judgment in operations for, (69) 353
  diagnosis of, by general practitioner, (143) 971
  in children, 2 unusual cases, (9) 1139
  latent, complicated by cerebral symptoms, blindness and streptococcemia, (27) 1420
MASTURBATION, circumcision in, of female infants, (7) 827
MATERNAL and fetal blood, medicolegal differentiation of, (129) 71
MAUNSELL'S method of intestinal anastomosis, modification of, (15) 2070
MAURICEAU'S 17th century treatise on obstetrics, 338—C
MAXILLARY BONE: See Jaw
MAYO clinic building at Rochester, (86) 970
MEASLES, (123) 1983
  Döhle's inclusion bodies in scarlet fever, diphtheria, tonsilitis and, (67) 357
  immunity in, *842
  in infants, 33 cases, (127) 1890
  middle-ear complication of, in immigrant children, (8) 887
  Milne's method to render scarlet fever and, mild and non-contagious, (87) 281
  pathologic processes and, (101) 814
  subphrenic abscess following, in child under five, (93) 979
MEASUREMENTS and weights of infants and children in private practice compared with institution children and schoolchildren, (1) 1787
MEAT, acidity of stomach contents in infants and children, on milk test diets and, (103) 814
  carnosin in, 489—E
  hygiene in United States, (76) 1137
  inspection, 1297—T
  poisoning and paratyphoid, (105) 1888
  red and white, 954—E
MECHANOTHERAPY and hydrotherapy for wounded and sick soldiers, (43) 1612
  department of Massachusetts General Hospital, *1733
MEDAL, English, melted up for relief work, 1309
  gold, presented to Germans by British societies melted up for relief work, 1405
  Knapp, awarding of, for research in ophthalmology, 42
  protest against melting of, 1589
  sent to melting pot, 1491
MEDIASTINUM, dermoid tumors in, (49) 2165
  tumor, (61) 1982
MEDIASTINUM, tumor, roentgenotherapy, (50) 509
MEDICAL College of Virginia merged with North Carolina Medical College, 493
  Council, 1594—P
  Education: See Education, Medical
  Practice Act: See Medicine, Practice Act
  Standard, editor of, and his opinion of medical profession, 408—E
  survey of Indian village, Haines, Alaska, (98) 429
MEDICINE, absorption of, when diluted with water, 796
  advances in modern, (81) 891, 1211—E
  advances in science and bearing on surgery and, (28) 2165
  and liberal arts, combined course in, 675
  and surgery, English, in 14th century, (29) 610
  Arabian, influence of, 1110—ab
  clinical, and medical sciences, *2083
  commercialism in, protest against, (59) 1697
  current events in, (70) 275
  dogmatism in, enforced, (6) 1888
  doxology, (82) 891
  embargo raised in Russia, 1042
  from chemical standpoint, (5) 807
  historical perspective in, 1300—E
  in Babylonia and Assyria, features of, 166—E
  in China, (22) 427
  industry and general, (37) 1789
  internal, underestimation of, by some who do surgery, (33) 1696
  law and, (43) 1885
  modern, and social problems, (57) 939
  modern, profit and loss account of, 2068—ab
  newspaper, press and, (55) 2073
  of future, Sir Clifford Allbutt on, 414
  organized, and legislation, (26) 605
  practice act, (107) 62
  practice of, and medical ethics, regulation of, during war, (27) 2262
  practice of, by Christian Scientist, 1052—MI
  practice of, in France, opened to Belgian physicians, 1866
  practice of, modern, (68) 1790
  practice of, national standard requirement for, 951—E, 1223—C
  practice of, one standard of entry to, 701—ab
  practice of, proof of illegal, 887—MI
  practice of, safeguarding, (76) 1144
  practice of, social status of, *2171
  practice of, treatment by manipulation and adjustment is, 2067—MI
  practicing, without authority, requirement for prosecution for, 1975—MI
  practicing, without license, punishable under statute, 1784—MI
  prerequisites for study of, 1635—ab
  preventive, (86) 892
  preventive, and war, 873—E
  problems in, (73) 607
  science of, diffusion of knowledge of, 1583—E
  scientific, is practical medicine, 1037—E
  service of, to civilization, (96) 198, 174, (72) 197
  socialization of, 264—ME .. ....
  socialization of, articles on, 698
  socialization of medical teaching and, (70) 606
  spirit of modern, (158) 277
  state, (70) 1790
  state, work of bureau of medical education and licensure in relation to, (115) 1983
  teachers of chemistry, anatomy, etc., should receive same salary as professors of clinical, 2248—C
  teaching of general, (109) 62
  tributaries of, 1623—ab
  twentieth century, (33) 509
MEDICOLEGAL cases, necessity for systematic and complete examination of nervous system in, (29) 432
  decisions, (85) 1331
  differentiation of maternal and fetal blood, (129) 71
  experts, quacks as, (205) 362

MEDICOLEGAL Society, French, 4th meeting of, 44
MEDICOPSYCHOLOGIC work in courts, (63) 1880
MEDINAL in jaundice, death after ordinary dose of, (105) 980
MEDITERRANEAN FEVER: See Malta Fever
MEDULLA, disease of upper, symptoms, (53) 356
MEETINGS, medical, quiet places for, 489—E
MEGACOLON, (27) 809
  congenital, (100) 282
  with appendicitis, (71) 1797
MEGALOCYTES in anemia, (23) 2262
MEIOSTAGMIN REACTION: See Reaction, Meiostagmin
MELANA neonatorum, blood in, (65) 516
MELANCHOLIA, acute and chronic, (90) 1989
MELANOBLASTOMAS, foot, (13) 803
MELANOSARCOMA: See Sarcoma, Melanotic
MELANOSIS in large intestine, (58) 1701
  of left sclera, (118) 714
MELITURIA in infants with disorders of nutrition, 2256—ab
MEMBRANE, amniotic, in preventing peritoneum adhesions, (154) 277, 1229—ab
  pericolic, interpretation of, 1227 ab
  retention of, after labor, (45) 201
MENDELIAN law and inherited conditions of eye, (22) 2310
MENDELISM, meaning of, (38) 2260
MENIERE'S disease, (111) 276
MENINGES, scarlet fever and meningeal complications, (47) 896
  syphillis of, salvarsan in, (57) 67
  tuberculosis, miliary, of peritoneum and, secondary to tuberculous metritis, (50) 66
MENINGISMUS and pneumococcic meningitis, (21) 59
MENINGITIS, antiparameningococcus serum in, recovery of infant with, (58) 202
  carcinomatous, (88) 713
  cerebrospinal, (131) 431
  cerebrospinal, epidemic, (56) 1790
  cerebrospinal, epidemic, small outbreak of, (17) 199
  cerebrospinal fluid examination in, and rachicentesis in children, (25) 513
  cerebrospinal, pneumococcal, chronic, primary, (17) 432
  cerebrospinal, serotherapy of, (38) 356, 1500—ab
  cerebrospinal streptococcic, purulent, magnesium sulphate in, (47) 2161
  ear disease and, (100) 1146, (34) 1441
  epidemic, prophylactic vaccination, *2126
  exophthalmos early sign in, (110) 814
  glycyl-tryptophan reaction in, (52) 1423
  injuries of skull and spine followed by, (65) 898
  meningococcus, refractory, (7) 1502
  operative treatment for, (38) 1055
  plague, typhus, relapsing fever and, during war, 1218
  pneumococcus, (81) 1703, (85) 1791
  pneumococcus, and meningismus, (21) 59
  pneumococcus, prognosis of, (129) 2170
  postoperative, serous, (131) 616
  proteus, and proteus sepsis in new born infant, (67) 977
  recurrent, due to lead, in child of five, (6) 1787
  suppurative, surgical treatment, (26) 1509
  tuberculous, (56) 1137, (100) 1327, (79) 1703
  tuberculous, complicated by influenzal meningitis, (9) 887
  tuberculous, hemiparesis and hemiplegia as early symptom in, (12) 1053
MENINGOCELE, whooping-cough and, unusual case, (86) 1063
MENINGOCOCCUS empyema, (111) 1983
  meningitis, refractory, (7) 1502
  vaccine, 1295
MENINGOMYELITIS, cancerous, case of, (124) 2170
MENOPAUSE, artificial, 1678—E
  hemorrhage in, formaldehyd cauterization for, (94) 1333
MENORRHAGIA, biochemical function of endometrium in etiology of metrorrhagia and, (101) 429
MENSTRUATION, age at onset of, (140) 2170
  age of human embryos in connection with last, (61) 1238
  and blood-picture in healthy, (33) 1428
  blood changes in labor, lactation and first, (62) 812
  blood in, causes of non-coagulability in normal, and pathologic clotting, (21) 278
  congestive conditions of, 582—E
  corpus luteum in irregular, (39) 1142
  corpus luteum in ovulation and, (60) 811
  literature on, 2152
  mud baths in disturbances of, (91) 69
  pathology of, (85) 1887
  thyroid not enlarged during, (148) 438
  vicarious or complementary, (243) 363
MENTAL deficiency act as it affects practitioner, (21) 1329
  Diseases: See Mind, Diseases of
  healing, scientific, faith cures contrasted with, (138) 1234
MENTHOL, injections of eucalyptol and, in prophylaxis and treatment of post-operative bronchitis, (47) 976
MERCURIALIZED serum in cerebrospinal syphilis, intradural injections of, *2182
MERCURY and copper lamp in rodent ulcer, (74) 613
  and salvarsan in syphilis, (90) 69, (265) 364, (57) 1238
  bichlorid poisoning with recovery, (75) 429, (75) 1982
  bichlorid problem, possible solution of, (95) 198
  bichlorid, regulation restricting sale, (103) 198
  chlorid poisoning, (52) 1231
  cyanid, subconjunctival injections of, for incipient cataract, 1603—ab
  deep muscular injections of, in vegetable parasitic infections, (82) 353
  inhalation, Engelbreth's, in syphilis, (201) 440
  inhalation, treatment, (111) 1334
  intravenous injection of, in syphilis, *563
  succinimid of, (109) 1057
  succinimid of, in pyorrhea alveolaris, (129) 1983
  test for tuberculous nature of effusion, (111) 814
MESENTERY artery, inferior, occlusion of, (117) 1698
  common ileocolic, with torsion, case of, (116) 892
  degrees of detachment of, compatible with retention of vitality of intestine, (96) 980
  rupture of, (78) 68, (97) 1146
  thrombosis originating from caseating tuberculous lymph node, (3) 807
  torsion of whole, (129) 1882
  vessels, embolism and thrombosis of, 1957—E
MESOCOLON, adherent, occlusion from, after retrocolic gastroenterostomy, (72) 1614
MESOSIGMOIDITIS, retractile, case of, (64) 352
MESOTHORIUM in cancer, (89) 979
  cancer of uterus and vagina, (62) 1144
MESS table, sanitary, for hospitals, (105) 1057
METABOLISM, action of inorganic and organic calcium-phosphorus preparations on, in recent rachitis, (55) 1987
  albumin, in experimental pancreas diabetes, (85) 2169
  albumin metabolism and total, in cancer, (69) 977
  basal, and creatinin elimination, (65) 1697
  basal, gaseous, of normal men and women, (31) 605
  basal, of man, 1395—E
  Bence-Jones proteinuria and, (45) 605
  calcium, after thyroparathyroidectomy, (36) 1136
METABOLISM, calcium, magnesium, sulphur, phosphorus and nitrogen, in acromegaly, (35) 1135
  calcium, with osteogenesis imperfecta, (4) 193, (84) 1063
  carbohydrate, studies of, (64) 61, (70) 1232
  cholesterin, in pregnancy, experimental study of physiology and pathology of, (79) 435
  congenital fragility of bones and, (111) 713
  dementia praecox and, (37) 273
  diabetes and, (141) 971
  effects of food on, typhoid in, *932
  fasting, of infants, (23) 605
  fever and, 1035—E
  gaseous, stimulation of, during treatment by direct sunlight, (120) 1706
  in myasthenia gravis, studies of, (12) 426
  in myotonia congenita, (44) 968
  in pregnancy, changes in, (170) 285
  influence of lactose on, of infant, (4) 1135
  iron, influence of spleen on, (72) 891
  nitrogen and sulphur, in cretin, (50) 1423
  nitrogen, before and after splenectomy in pernicious anemia, (57) 2161
  nitrogenous, in chyluria, (12) 1140
  of isomer of xanthin and isomers of methylxanthins, (67) 1232
  of lepra bacillus, grass bacillus, and smegma bacillus in plain, dextrose, mannite and glycerin broths, (80) 2162
  of rapidly growing human, tuberculosis bacilli, (77-79) 2162
  of saprophytic human tubercle bacilli in plain, dextrose, mannite and glycerin broths, (76) 2162
  protein, intermediary, *823
  purin, biochemistry of, (68) 969, (84) 970
  purin, endogenous and exogenous, in monkey, (67) 61
  purin, influence of secretions of ductless glands on, (89) 2169
  purin, new aspects of, 1397—E
  thyroid treatment and, (58) 1795
  volatile fatty acids in intestine of normal infants and those with gastro-intestinal disturbances and their relation to disturbance in metabolism, (227) 363
METASTASES, actinomycosis with, (40) 1330
  from cancer of breast, treatment of recurrence and, (5) 2075
  infection, (57) 1232, (43) 2160
  infections of joints, etiology, diagnosis and treatment, (141) 1235
  numerous, with histologically nonmalignant angioma, (17) 1985
  obstruction of esophagus by false membrane in fatal diphtheria, (91) 2169
  of goiter tissue, (37) 1330
  of hypernephroma in spine, (139) 360
METASYPHILIS, term no longer justified, (52) 1510
METATARSALGIA or Morton's neuralgia, (55) 1697
METATARSUS, dislocation of, (26) 809, (43) 1330
  infraction of second, (122) 892
METCHNIKOFF and Behring, 2144
  jubilee of, 496
  theory, 1779—C
METEOR wire, 1315
METHANE indicator or fire-damp, 1226—ab
METHEMOGLOBIN, production of, by pneumococci, (73) 1606
METHYL alcohol, absorption of, through lungs, 954—E
  alcohol inhalation, experimental researches in, *915
  glucosides, tetramethyl glucosides, and natural disaccharides, action of tissues on, (75) 369
METHYLENE blue reactions, Russo and Fuchs-Lontz, in urine, not specific for any disease, (108) 615
METRITIS, chronic, subdivisions of, (14) 1610
  tuberculous, miliary tuberculosis of meninges and peritoneum secondary to, (50) 66
METROPOLITAN of Paris, work of, (9) 974
METRORRHAGIA: See also Uterus, Hemorrhage
METRORRHAGIA, (41) 509
  at puberty, (125) 1328
  biochemical function of endometrium in etiology of menorrhagia and, (101) 429
MICHIGAN medical news, 40, 491, 693, 875, 1040, 1586, 1679, 1863, 1961, 2051, 2237
  reciprocity report, 2064
  state board June report, 2251
MICROBIOLOGY, recent contributions in, (60) 1605
MICROMETHOD, Bang's, for determining blood sugar, compared with Bertrand's method, (16) 605
MICTURITION: See Urination
MIDWIVES act, working of, in England, (18) 432, (18) 610
  problem of, medical profession and community, (26) 1231
MIGRAINE and arteriosclerosis, infancy of, (103) 892
  ophthalmic, unusual case of, (69) 1056
  treatment of, (79) 1791
MILITARY HYGIENE: See Hygiene, Military
  Surgery: See Surgery, Military
MILITIA, medical profession and, (40) 1231
MILK, (56) 707
  albumin, (87) 517
  albumin in diarrhea of infants, (35) 509
  albumin in infant-feeding, (209) 362, (254) 364, (70) 434
  alcohol in urine and, 833
  and dairies bill and bacteriologic examination, (27) 432
  bacteria in, heated to various temperatures, (34) 1325
  bacterial counts, 37 C. requirement for, protest against, (17) 350
  bacteriological examination of, Knoxville, (87) 1507
  blue, 249—E
  boiled, in infant feeding, *1991
  breast, practical problems, *1179
  breast, skimmed, feeding of, *1181
  clean, problem of, 176
  cow's, cells in, 783—E
  cow's, for infant nutrition, adaptation of, (89) 813
  cow's, fresh, acidity of, cause and method for determining, (65) 1232
  cow's, raw and heated, (84) 353
  depot, history of first, in America, *1574
  desiccated, in infant feeding, (108) 1243
  digestion of, influence of fat on, (107) 1243
  digestion of starch and, in infant's stomach, (102) 1334
  diphtheria spread by, (141) 2170
  dirt in, bacteriological index for, (102) 1057
  farmers being paid for, on score-card basis, 1811—ab
  fat and body-fat, identity of pigments of, 948—E
  fermented medicinal, Kefir, (114) 429
  hexose sugar in normal, bacteriologic and chemical evidence of, (33) 1505
  idiosyncrasy to, in infants, (169) 206
  industry, future of, (12) 2159
  lactose content of human, (93) 1888
  of different breeds of cows, 2235—E
  pasteurization of, (110) 2075
  peanut, in infant feeding, (44) 1429
  production of nitrogen of alfalfa hay and corn grain, (71) 1232
  proteins of grain cereals and, value of, for growth in pig, (12) 2259
  rebipelagar in examination of water and, (145) 1699
  refrigerators for conveying, 1309
  regulations of sale of, 54—MI
  secretion and pituitary extract, 2292—E
  secretion of, effect of intramuscular injection of pituitary extract on, (21) 1605
  septic sore throat due to, (32) 804
  sickness, (60) 890, 1971
  skimmed, value of and its dilution in fever, (106) 892
  spore-bearing bacteria in Washington market, (35) 1324
  standards for, 485—E

MILK, streptococci of bovine and human origin in, growth and viability of, (35) 1506
  streptococcus sore throat in Jacksonville, Ill., traced to cows with mastitis, (26) 2071
  supply and tuberculosis, (37) 895, (1) 1699
  supply, city, financial stimulus in improvement of, (13) 2159
  supply, control of, in Toronto, (98) 510
  supply in Paris, (37) 1985
  tuberculous, in Edinburgh, (11) 513
  typhoid from, through carrier, (124) 1139
  whey-albumin, for infants, (157) 284
  whey, modified, in infant feeding, (2) 1134
MILLING industry, loss of life by explosions in, 2137—E
MILNE'S method to make scarlet fever and measles mild and non-contagious, (87) 281
MIND, alcohol as factor in causation of diseases of, (77) 806, (50) 1790
  army and diseases of, 1396—E
  castration in women and disturbances of, *1345
  causative factors in nervous diseases and diseases of, (51) 806
  chess players, mental state of, (78) 1881
  condition of attending physician versus experts on, 801—Ml
  defects of, psychologic aspects of relation of divorce, accidents and crime to, (87) 275
  disease of, after injury of frontal lobes of brain, (96) 1888
  disease of, among soldiers, (73) 2167, (49) 2264
  disease of, general practitioner and study and prevention of, (45) 1697
  disease of, rachicentesis, serologic, *cytologic and chemical findings* of, (59) 969
  disease, satellite cells in 50 cases of, study of, (6) 1793
  disease, society responsible for nervous and mental diseases, (35) 1880
  disease with acute articular rheumatism, (9) 1878
  empyema of ethmoid cells and disturbances of, (75) 707
  ergotherapy in disorders of, (49) 969
  etiology of nervous and mental diseases, in private and hospital practice, (81) 2168
  hereditary deficiency of, (124) 2075
  interruption of operation of, and periodical insanity, (36) 1794
  nervous and mental findings in feeble-minded children, (76) 1881
  neurologic examination in diseases of, *1754
  physical cause of diseases of, (77) 1881
  post-traumatic affections of, (58) 2264
  prevention of nervous and mental disease, (50) 1880, (22) 2165
  processes of, in sane and insane, (21) 2165
  prophylaxis of disease of, public institutional work in, *1898
  protective ferments transmitted passively in disease of, (96) 814
  serodiagnosis, Abderhalden, of diseases of, precautions and limitations, (55) 1880
  serodiagnosis of nervous diseases and diseases of, (95) 713
  teaching of nervous and mental diseases, *1707
  treatment of diseases of, newer methods in, (105) 198
MINE, coal, first aid hospitals in, (83) 1982
  coal, hygienic aspects of, in United Kingdom, (24) 355, (21) 432
  gases, first aid to those overcome by electric shock and, 1784—ab
  gases, resuscitation from, 1117—E
  sanitation, 1763—T
  to reduce death in, 1774
MINERAL WATER: See Water, Mineral
MINNESOTA medical news, 251, 329, 694, 790, 1040, 1121, 1213, 1401, 1587, 1679, 1863, 1961, 2051, 2141
MINNESOTA, railroad water-supply in, 408—E
  school of public health, 682
  state board April report, 266
  state board June report, 1496
  state medical association, Penhall vs., 1498—Ml
MIOTICS in chronic glaucoma, value of, *219
MIRACLES, modern belief in, (105) 1063
MISSION, American Presbyterian, at Canton, China, (25) 427
  Labrador, hospital work of, (111) 971
  medical, larger meaning of, (21) 427
MISSIONARIES, medical, meet, 2053
MISSISSIPPI medical news, 411, 791, 955, 1122, 1307, 1679, 1771, 1863, 2051, 2237
MISSOURI Medical College, history of, from 1840 to 1861, (90) 892
  medical news, 173, 252, 329, 587, 791, 955, 1213, 1307, 1401, 1586, 1679, 1771, 1863, 2141
  prehistoric mortars and pestles, (74) 2074
  state board February report, 2251
MISTLETOE, American, parahydrophenylethylamine pressor compound in, (73) 1697
MITES, (19, 25) 2075
MITOCHONDRIA in spinal ganglion cells of vertebrates, comparative distribution of, (1) 2159
MOLD fungi, streptothrix foersteri, in gastric contents, *164
  prevention of, in Kaiserling solution, 597, 796
MOLLUSCUM fibrosum, (23) 1793
MONEY, transmutation of, for baths into lecturer's fees, 787—E
MONOPHOSPHATE, inosite, (71) 970
MONSTERS, double, and united twins, (189) 286
  twin, parasitic, (92) 614
MONTANA medical news, 329, 411, 955
  state board April report, 188
  state board July report, 1496
MONTREAL wins in vaccination suit, 1682
MORBIDITY and alcoholism, connection between, (198) 286
  and mortality in Canal Zone for June, 590
  of surgical cases, factors determining, (13) 2070
  reports and statistics, *1845
MORBUS ceruleus in an adult, (23) 1054
  cordis, severe, pregnancy complicated by, 2 cases treated by hysterotomy under spinal anesthesia, (15) 64, (14) 974
MORPHIN acted on by yeast as analgesic, (32) 810
  acute retention of urine under, (77) 978
  as aid to anesthesia, (54) 1232
  detoxicated, and painless childbirth, 2233—E
  habit, prognosis in, (100) 204
  habit, remarkable case of, (57) 606
  in pediatric practice and operations, (84) 1989
  in puerperal eclampsia, (27) 514
  prescribing and sale of, unlawful, 2157—Ml
  test for, (23) 513
  test for, non-interference of ptomaines with, (70) 61
MORTALITY and industrial disease in Hungary, (86) 68
  and morbidity in Canal Zone for June, 590
  Infant: See Infant Mortality
  Statistics: See Statistics, Vital
MORTON'S neuralgia or metatarsalgia, (55) 1697
MOSQUITO, 1392—T
  and sewage disposal, (10) 2258
  larva, destruction of, by fish, 2009—ab
  larva, destruction of, in swamps, stream beds, ponds, wells and pools, [illegible] 709
  naphthal[illegible] for destruction of, in cover[illegible] cisterns and wells, (11) 431
  rôle of certain species in prevention [illegible], (100) 353
  war with [illegible] in Mexico, (5) 1053
  work [illegible] in Colombia, (7) 1984
MOTHER, development of new-born white rats when separated from, and artificially fed, (90) 813
  diet of, and development of fetus, 873—E
  salvarsan given, action on syphilis of fetus, (79) 1332
MOUNT Lebanon sanatoria at Juneh and Chebanin, Syria, (23) 427
  Zion Hospital, plans and equipment, (54) 509
MOUNTAIN climate and sunlight for tuberculosis of hand, (40) 977
MOUTH and gastro-intestinal lesions, importance of, in pellagra symptoms, (30) 1324
  care of teeth and, 2290—T
  complications of exanthemata, (103) 1698
  diet as means of prophylaxis, (48) 1981
  endamebas, *1746
  finger, handy, *1030
  hygiene, (127) 1139
  Hygiene Association, meeting of, 332
  infection as source of systemic disease, *2024, *2025, *2026
  infection, chronic focal, of nose, throat, ear and, *1636
  infection factor in nervous diseases, *2027
  infection, prevention of, (100) 1057
  observation of teeth and, from life insurance standpoint, (52) 1790
  roof, temporary resection of, (41) 976
  sepsis in lung tuberculosis, diagnosis and treatment, (23) 610
  surgery, preparation in dental schools for teaching, (96) 1881
  tooth detergents, 50
  trifacial neuralgia and conditions of, (170) 973
  tuberculosis of gums and, (96) 436
MOVEMENT, coordination of, (71) 61
  forced, anatomicophysiologic study of posterior longitudinal bundle in relation to, (3) 1792
MUCH'S granula, a hibernating *form of tuberculosis* virus, (137) 72
MUCOUS membranes, tumors of skin and, desiccation treatment of, *925
MUD baths for sciatica, (48) 811
  baths in menstrual disturbances, (91) 69
MUM, composition of, 1048
MUMMIFICATION, natural, 44
MUMPS: See Parotitis
MURMURS, accessory, heard over aorta, (90) 2169
  Austin Flint, mode of production, recognition and importance, (31) 2160
  intracranial, (95) 2169
MURPHY button, improved, (61) 1060
  button, plea for more uniform use of, (15) 887
  method in ankylosis of knee, (32) 65
MUSCLE, abdominal, tonicity of, in typhoid, (43) 1700
  comparative chemistry of, (59) 60
  contraction of, synchronous with heart beat, (72) 1988
  extra-ocular, operations on, (106) 2075
  flaps, pedunculated, plugging cavities in bones with, (54) 976
  flaps to arrest hemorrhage, experimental research on, (71) 357
  flaps to arrest hemorrhage of heart and liver, (74) 357
  hernia of, fascia patch to cure, (22) 975
  hypertonicity of, in new-born infant, (112) 359
  implantation of nerve in, (38) 1237
  implantation of nerve in, and neurotization corrects paralysis of trapezius muscle, (127) 71
  levator ani, suture of, in perineorrhaphy operations, (75) 1056
  metabolic changes in tissue of, (63) 1697
  ocular, external, paralysis of, with lead-poisoning, *403
  ocular, extrinsic, congenital absence of, 421
  ocular, paralysis of, (13) 967, (72) 1702
MUSCLE of hand, leg and diaphragm, localization of function in spinal cord for, (77) 1144
  quadriceps, paralysis of, (32) 1060
  rectus, external, paralysis of, due to abscess in apex of petrous pyramid, death from basal meningitis, (5) 974.
  rectus, external, spontaneous rolling up of eyeball on attempt at adduction with congenital paralysis of, (261) 364
  scapular, spasmodic contraction of, (56) 434
  sign of chronic appendicitis, (90) 1146
  smooth, action of pituitary extract from gravid and non-gravid animals on, (61) 67
  smooth, heat production in, (20) 1605
  thyroid extract, effect of, on voluntary, (8) 426
MUSCULATURE in children with rachitis, histologic examination of, (54) 1987
MUSCULOCUTANEOUS nerve, paralysis of, 2 cases, (79) 2168
MUSEUM for infant hygiene, 46
  jars, sealing of, 597, 796
MUSHROOM poisoning, (18) 427, (136) 2170
MUSIC, salutary effects of, 953—E
MUTATIONS in bacteria, 424—ab
MYASTHENIA, epithelioma of thymus in, (17) 1059
  gravis, (106) 354, *1553, (14) 1793 (97) 2081
  gravis, metabolism studies in case of, (12) 426
  paralytic, versus asthenia from adrenal insufficiency, (75) 281
MYATONIA congenita, (24) 605
  congenita of Oppenheim, (6) 1502
MYCOSIS of lungs, (114) 1889
MYDRIASIS, treatment of, 1495
MYELITIS, acute, with perirectal abscess after severe fright, *1546
MYELOID tissue, abnormal proliferation of, without blood-picture of leukemia, (120) 70
MYELOMA, (94) 2169
MYIASIS, ear, with radical mastoid operation, *479
  intestinal, *321
  rhinal, 2 cases, (87) 1327
  urinary tract, *2285
MYOCARDITIS, gummatous, (139) 2170
MYOCARDIUM function, diagnosis of abnormalities of, (30) 967, (30) 2160
  how to tell whether competent, 349—ab
  insufficiency, chronic, prognosis of, (29) 2160
MYOCLONIAS, (83) 1233
MYOMA and cancer in same uterus, (188) 286
  esophagus and cardia, (109) 70
  pregnancy and, (40) 1238
  uterus, and malignancy, 1417—ab
  uterus, conservative operative treatment of, (64) 202
  uterus, treatment of, (107) 70
  vagina, (63) 67
MYOMECTOMY and resection of uterus in fibroid tumors, 1418—ab, (11) 2070
  pregnancy after, (28) 514
MYOPATHY, (10) 1604
  spinal, progressive, new familial form of, (53) 1981
MYOPIA, biologic variability as factor in, (37) 2166
  heredity in, (6) 1139
MYOSITIS, *1249
  ossificans following trauma, *1452, (62) 1796
MYOTONIA, acquired, (20) 809
  congenita, (27) 1428, (55) 1790
  congenita, metabolism in, (44) 968
MYRINGOTOMY, injury to jugular bulb following, in infant 10 months old, (30) 273
MYXEDEMA: See also Acromegaly, Cretinism; Goiter, Exophthalmic; Infantilism
MYXEDEMA, (108) 2163
  congenital, and thyroid treatment, (97) 713
  graft of monkey's thyroid for, in boy of 14, (30) 810
  roentgenogram, transverse striation in, (228) 363
MYXOSARCOMA, nasopharyngeal, (24) 1420
  or granuloma of hand, (20) 1985

N

NAILS, favus and ringworm of, *640
NAME, pleasant, for hospitals and sanatoriums, 1304—E
NAPHTHALENE for destruction of mosquitoes in covered cisterns and wells, (11) 431
NARCOPHIN, 1872
NASMITH, Dr., to safeguard soldiers' health, 1042
NASOLACRIMAL stenosis, intranasal operation for, (19) 1420
NASOPHARYNGOSCOPE, (51) 279, (107) 1607
NASOPHARYNX, involution of, clinical importance of, (11) 426
  myxosarcoma of, (24) 1420
  polyp in, (60) 356
  shape of cavity, and transverse sinus, (106) 1334
NATIONAL Association for the Study and Education of Exceptional Children meets, 42
  board of medical examiners, 951—E
  Child Labor Committee, meeting of, 2239
  Civic Federation, meeting of, 1964
  defense and medical profession, (55) 1605
  department of health, Gorgas for head of, 1414—ab
  League for Medical Freedom, attack of, on Bureau of Education, 1038—E
  Medical Association meeting, 956
  standard requirement for practice of medicine, 951—E, 1223—C
NATURE, healing power of, (4) 894
NAVAL battle, circular to be distributed before, (65) 1613, (51) 2264
NAVY, health conditions in, 2139—E
  medical service in, (45) 1794
  scuttle butt, suggested improvement of, (106) 1057
NEAL, E. Virgil, a noted quack, 499—P
NEANDERTHAL man, (50) 352
NEBRASKA medical news, 39, 411, 491, 791, 1213, 1864
NECK abscess of otitic origin, (108) 1888
  cystic cancer of, (104) 282
  gunshot wounds of face and, (105) 359
  lipomas of, diffuse, operative treatment, (125) 1890
  lymph glands of, chronic disease of, (89) 1888
  table attachment for surgery on face, throat and, *483
  tumors, (115) 892
  tumors, injury of vagus during removal of, (194) 440, (83) 1145
NECROPSY among Jews, (108) 62
  findings and surgical diagnosis, (129) 1328
  findings at Galveston, (143) 199
NECROSIS, local, following skin tuberculin test, (111) 1243
  pancreas, postoperative, (78) 712
NEEDLE, aneurysm, two-eyed, (94) 1056
  found in physicians' heart, 494
  holder, magnetized, (111) 62
  protruding through wall of stomach, (83) 61
  self-retaining, for administering salvarsan intravenously, *1029
NEGRI bodies, technic for staining, (93) 1145
NEGROES, American, skin diseases in, (76) 1697
  in hospital life, 494
  in south, condition of, (113) 2075
  laundresses, tuberculosis among, (82) 1233
  mental examination of, diagnostic pitfalls in, (99) 198
  psychoses among, (6) 1878, (55) 1981
  public health problem, (135) 199
  syphilis among canal, (127) 1698
  syphilis in American, *463
NEMATODES, bursate, from Indian elephant, (15) 1984
  formula, variation in oxyurias and, (67) 1424
NEOPLASMS: See Tumors
NEOSALVARSAN and salvarsan in hereditary syphilis, (2) 807
  and salvarsan in office practice, (123) 205
  and salvarsan in syphilis, (92) 2074
  and salvarsan, intramuscular and intravenous injections of, in frambesia, (23) 894
  behavior of, (64) 1424
NEOSALVARSAN, complications following intradural injection of, *1851
  concentrated solution of, (94) 198
  death after, (171) 361
  for children, (63) 2078
  in active pulmonary tuberculosis, (31) 200
  in entamebiasis, (122) 430
  in feeblemindedness, (18) 1700
  in progressive paralysis, (142) 72
  in syphilis of nervous system, in light of Wassermann reaction and treatment with, (1) 2164
  in syphilis of nervous system, intradural injections, technic of, *137
  in syphilis of nervous system, intrameningeal injections of, *2287
  in syphilitic keratitis, (34) 810
  intraspinal injections of, (87) 1881
  intravenous injection of concentrated solution of, (92) 1989
  intravenous injections of, experience with, (59) 1325
  intravenous injections of, technic for, (59) 711, (32) 1329
  Los Angeles deaths from intraspinal injections of, (42) 60
  malaria cured by, (107) 1057
  spinal fluid changes after injection of, (105) 713
NEOSALVARSANIZED serum in syphilis of nervous system, (54) 1143
NEPHRECTOMY, changes in other kidney after, (66) 357
  injury of vena cava during, (107) 608
  limits for, (229) 363
  lumbar, 6 cases, and 1 case of resection for kidney varix, (13) 1236
  technic for, (231) 363
NEPHRITIS, acute, cerebrospinal fluid in, in children, (109) 1888
  acute, experimental, effect of pancreas extract on, in rabbits, (123) 360
  acute, from chilling, (60) 1431
  acute, in infants, (50) 612
  acute, operative measures in, (89) 1615
  acute, septic, (234) 363
  Ambard's uremic constant in, (85) 1615
  arterial hypertension and arteriosclerosis in relation to, (89) 275
  azotemia in, (194) 286
  balneotherapy in chronic, (92) 69
  blood-pressure with arteriosclerosis and, (87) 2169
  blood volume in normal and nephritic animals, regulation of, (28) 278, (24) 1985
  blood volume regulation in experimental, (31) 278, (29) 1985
  chronic, (56) 1795
  chronic interstitial, cystic kidney symptoms similar to, (128) 360
  chronic, urea content of blood as basis for prognosis in, (54) 66, (77) 281
  creatin and creatinin elimination in diabetes and, (93) 2169
  decapsulation of kidney in, mercurial, (48) 356
  edema with, origin of, (56) 1613
  hemorrhagic, periodical, (137) 360
  in children, latent hypertrophy of heart in, (25) 1695
  iodin and lactose elimination in various types of nephritis, comparative tests for, (67) 711
  kidney functioning in, tests of, (128) 616, (7) 1323
  kidney lesions of Asiatic cholera and acidosis and, (4) 1053
  nervous symptoms in, 57—ab, (89) 970
  parenchymatous, bacteriology of urine in, *1661
  pathology and functional diagnosis, (133) 205
  phthalein test and urea excretion in chronic, (43) 811
  procreation and, (108) 713
  sodium chlorid in, *1906, 2305—C
  surgical treatment of, (127) 63
  sweat baths, influence of, on nonprotein nitrogen content of blood in, *944
  tartrate, acute chronic, elimination of phenolsulphonephthalein in, (62) 1232
  theobromin sodium salicylate and theocin, effect of, on renal function in acute experimental, (42) 273
NEPHRITIS, traumatic, (78) 281
  treatment of, (97) 1607, 1878—ab
  uranium, acute, vascular response of kidney in, (83) 1425
  urine in, of scarlet fever and diphtheria, (9) 1058
NEPHROLITHIASIS, differential diagnosis of renal tuberculosis and, by roentgenography, *2006
  management of, (57) 707
NEPHROPEXY, (81) 281
  experiments on animals to determine influence of ureteral obstruction on kidney infections, description of author's, (31) 509
  for movable kidney, (42) 811
  right-sided, and splenopexy simultaneously, (99) 892
NEPHROPTOSIS, capsular occlusion in, (1) 1609
NERVE, acoustic, tumor of, 6 operative cases, (82) 1797
  blocking for gynecologic operations, (57) 516
  blocking in prevention of surgical shock, (118) 1608
  blocking in sciatica, (35) 1611
  canal through bone, report of experimental work to close, *1245
  cranial, rhinogenic and otogenic, lesions of 3d, 4th, 5th and 6th, (18) 278, (13) 513
  degeneration in fowls fed on unhusked rice, (123) 430
  fiber, carbon dioxid production from, in hydrogen atmosphere, (11) 508
  fibers and ganglia in limulus, comparison of carbon-dioxid output of, (65) 969
  grafting for paralysis of larynx, (104) 1888
  gunshot wounds of, (102) 358, (118) 519
  gunshot wounds of, in arms, (24) 2262
  implantation in muscle, (38) 1237
  implantation in muscle, and neurotization corrects paralysis of trapezius muscle, (127) 71
  impulse, nature of, 2135—E
  musculocutaneous, paralysis of, 2 cases, (79), 2168
  optic, atrophy, acute, double, 3 cases of, (106) 429
  optic, atrophy, diagnosis of, (72) 1797
  optic, atrophy, tabetic, intraspinal injections of salvarsanized serum in, *866
  optic, tumors, *20
  peripheral, surgery of, (49) 976
  peripheral, war wounds of, (23) 2311
  phrenic, cervical neuralgia and, (32) 1509
  phrenic, cutting of both, in tetanus cramp of respiratory apparatus, (66) 1796
  phrenic, electric stimulation of, and roentgenoscopic findings, (107) 713
  phrenic, pain in shoulder as symptom with acute surgical abdominal disease, (50) 1060
  rate of conduction in irritable tissues especially, conditions determining, (12) 508
  recurrent, neuritis of, (63) 1796
  Root, Spinal Section of: See Rhizotomy
  sciatic, stretching of, in sciatica, (90) 1063
  spinal, sciatica from affections of roots of, (48) 811
  splanchic, blood-flow through kidney after section of, effect of vagus stimulation on, (8) 1503
  splanchnic, compensatory phenomena in distribution of blood during stimulation of, (18) 888
  suture of tendons and, in field, (73) 1988
  tissue, regeneration of, in test-tube, (46) 66
  transplantation of, (45) 2166
  vagus, injury to, in operations on neck, (83) 1145
  wounds of, surgical treatment, (21) 2262
NERVOUS and mental affections, post-traumatic, (58) 2264
  and mental diseases among soldiers, (49) 2264
  and mental diseases, etiology of, in private and hospital practice, (81) 2168
  and mental diseases, prevention of, (45) 1697, (50) 1880, (22) 2165
NERVOUS and mental diseases, society responsible for, (35) 1880
  and mental diseases, teaching of, *1707
  and mental diseases, treatment, newer methods in, (105) 198
  and mental findings in feebleminded children, (76) 1881
  and venereal diseases, relationship of, (67) 806
  castration in women, and nervous disturbances, *1345
  cervical rib, double, and nervous symptoms, 1976—ab
  diseases and syphilis, (77) 1982
  diseases, causative factors in mental and, (51) 806
  diseases, diagnosis of, (111) 1608
  diseases, effects of alcohol on mental and, (77) 806, (50) 1790
  diseases, etiology of, importance of functional activity in, (45) 432, (48) 710
  diseases, parasyphilitic, and late syphilitic manifestations, intraspinous injection of salvarsan in, (1) 58
  diseases, peridental infection factor in causation of, *2027
  nephritis and nervous symptoms, 57—ab, (89) 970
  pellagra and nervous manifestations, (88) 353
  pernicious anemia and nervous manifestations, (81) 197
  serodiagnosis of mental and nervous diseases, (95) 713
  shock, physicians may testify as to usual effect of, 2157—Ml
  structures in man, absence of bony pressure on, 1596—C
  symptoms in syphilis and cerebrospinal fluid findings, relations between, (198) 362
  system and cerebrospinal fluid in secondary syphilis, (31) 1135
  system and naval warfare, (122) 1983
  system, celluloid splints in diseases of, *773
  system, central, and modern syphilis therapy from biologic point of view, 1787—ab
  system, central, lymphogenous infection of, (1) 1791
  system, central, prognosis and treatment of injuries of, with reference to trauma, (130) 1608
  system, central, symptoms from impairment of functioning in, (67) 613
  system, chancre of lip with early involvement of, (97) 62
  system, comparison of lesions in distemper of dog with those of human poliomyelitis, (19) 1985
  system, hereditary disease of, (2) 1792
  system in industrial skin diseases, (53) 66
  system, Leri's arm sign in disease of central, (166) 438
  system, local manifestations in ear, nose and throat associated with disease of, (66) 890
  system, necessity for systematic and complete examination of, in medicolegal cases, (29) 432
  system, pathologic-histologic findings in, with beriberi, (78) 1145
  system, physiology of, history of, (54) 352
  system, sympathetic, and testicle, 1860—E
  system, sympathetic, effect of epinephrin on, of infant, (192) 362
  system, syphilis, diagnosis and treatment, (47) 969
  system, syphilis, in light of Wassermann reaction and treatment with neosalvarsan, (1) 2164
  system, syphilis, intradural injections of neosalvarsan in, technic of, *137
  system, syphilis, intrameningeal injections of neosalvarsan in, *2287
  system, syphilis, laboratory diagnosis of, (4) 58
  system, syphilis, neosalvarsanized serum in, (54) 1143
  system, syphilis, ocular symptoms of, (14) 967
  system, syphilis, paralysis agitans syndrome with, (25) 1054
  system, syphilis, recurrences of, under salvarsan, (72) 68
  system, syphilis, salvarsanized serum in, (82) 429, (59) 606, *1936

NERVOUS system, syphilis, treatment of, *552, (5) 1978, (78) 1982
  system, toxic diseases of, (67) 1982
NEURALGIA, blood-pressure with, difference on two sides, (92) 1514
  brachial, (47) 1330
  cervical, and phrenic nerve, (32) 1509
  frontal, (47) 509
  Morton's, or metatarsalgia, (55) 1697
  occipital, removal of second spinal ganglion in, (31) 1509
  occipital, unbearable, operative cure of, (31, 32) 1509
  trifacial, alcohol injection in, (68) 197, *1725
  trifacial, relations of nose, throat and mouth conditions to, (170) 973
NEURASTHENIA, signs of, (122) 71
  traumatic, duty to minimize damages in cases of, 2067—Ml
  tuberculosis and, *996
  vicious circles of, (3) 354
NEURITIS, brachial, cervical ribs as cause of, (48) 197
  electricity in, (62) 279
  optic, sympathetic, or transferred papilloretinitis, with mild serous iridocyclitis, (162) 973
  optic, with orbital abscess due to acute ethmoiditis in child, (107) 1698
  pregnancy, (149) 206
  recurrent nerve, (63) 1796
  retrobulbar, acute, with marked acetonuria, *27
  retrobulbar, with involvement of ethmoid, (82) 1790
NEURODERMITIS in children, (22) 2262
NEUROELECTRICITY, (59) 279
NEUROFIBROMATOSIS, (103) 518, *1358
NEUROLOGY and surgery, (144) 431
  orthopedic surgery and, (30) 1231
NEURORETINITIS, toxic, salvarsan in, (107) 1064
NEUROSIS and purpose, (73) 1982
  borderland, (61) 275
  compulsion, (92) 1138
  drink, periodicity of, (60) 1506
  gastric, (94) 2081
  gastric, from organic abdominal disease, (9) 58
  gastric, investigation of, with vago-excitative characteristics, (125) 971
  industrial, pathogenesis and treatment, (28) 706
  traffic officers', 2151—C
  traumatic, (30) 432, 549—ab, (12) 1604
NEUROTIZATION and direct implantation of nerve in muscle corrects paralysis of trapezius muscle, (127) 71
NEUROVASCULAR training, apparatus for, (68) 606
NEVADA medical news, 40, 492, 1307, 1587
  state board May report, 699
NEVUS, clinically malignant and pathologically non-malignant, (60) 1790
  hairy, excised, 2 cases, (264) 364
NEW HAMPSHIRE state board July report, 1496
NEW JERSEY medical news, 411, 587, 1122, 1307, 1401, 1587, 1771, 1864, 2141
NEW MEXICO state board April report, 699
  state board July report, 2252
NEW ORLEANS Medical and Surgical Journal, advertisements in, 249—E
NEW TELLER refuses advertising of Associated Doctors, 1595—P
NEW YORK City Department of Health, Bureau of Child Hygiene, 56—ab
  City health department, educational work of, 1678—E
  Institute of Physicians and Surgeons, 499—P
  Institute of Science, 499—P
  medical news, 40, 173, 252, 329, 411, 492, 588, 694, 791, 875, 955, 1040, 1122, 1213, 1307, 1402, 1597, 1680, 1771, 1864, 1962, 2051, 2141, 2237
  Milk Committee, classification of milk standards proposed by, and endorsed by A. M. A., 485—E
  new public health in, 1302—E
  reciprocity report, 1049
NEW YORK state board January report, 965
NEWS in peace and war, 490—E
NEWSPAPER and book-store proprietors, Binghamton, attitude of, toward "The Clarion" by S. H. Adams, 2049—E, 2062—C
  lack of consistency between advertising and editorial columns of, 2148—P
  patent medicines and control of 2049—E, 2072—C
  press and medicine, (55) 2073
  publicity and suicides, 600—ab
NICKEL-CHROMIUM wire for bacteriologic laboratory, (25) 509
NICOLLE and Blaizot's vaccine in gonorrhea, (5) 2164
NICOTIN and caffein, effects of, on activity of intestinal musculature, (107) 892
  habit, treatment of, 184
NINHYDRIN reaction, application of, to urines and urine dialysates in pregnancy, (16) 887
NIPPLES, rubber, and children's toys, 1954—E
NITRATES in potable waters, determination of minute quantities of (17) 2159
  in urine, significance of, (12) 1883
NITROGEN and sulphur metabolism in cretin, (50) 1423
  and urea nitrogen, increase of total, in cerebrospinal fluid in insanity, (43) 2012
  colloidal, in urine in differentiation of cancer, (58) 1332
  compounds of, simple, in nutrition, 1768—E
  determination of, by calorimetry, (83) 910
  excretion in fever, (40) 1136
  excretion of ammonia and, in urine on different diets, especially on rice diet, (66) 977
  in blood and urea in liver disease, *2214
  metabolism before and after splenectomy in pernicious anemia, (57) 2161
  metabolism of calcium, magnesium, phosphorus, sulphur and, in acromegaly, (35) 1135
  milk production of, of alfalfa hay and corn grain, (71) 1232
  movements of, and relation to bacteria, (94) 69
  non-protein, and urea in human blood, concentration and elimination, (61) 1232
  non-protein, and urea of blood in health and in disease, estimated by Folin's methods, (25) 2071
  non-protein, content of blood and phenolsulphonephthalein excretion in urine, (26) 1195
  non-protein, content of blood in nephritis, influence of sweat baths on, *944
  non-protein, of blood, in toxemias of pregnancy, (9) 1195
  output of urine, involution of uterus and its effect on, (24) 705
NITROUS-OXID ANESTHESIA: See Anesthesia, Nitrous-Oxid
NITROUS oxid, impurities in, (50) 1231
NOCARDIA, acid-fast streptothrix, (8) 103
NOGUCHI, butyric acid test of, aid in *diagnosis*, (34) 428, 597
  luetin test for syphilis, (21) 803
NOISE, city, and infants, (22) 1141
  hindrance to effectiveness of meetings of medical societies, 489—E
NORTH CAROLINA Medical College merged with Medical College of Virginia, 493
  medical news, 40, 955, 1122, 1213, 1307, 1537, 1680, 1864, 1962, 2141, 2238
NORTH DAKOTA medical news, 412, 876, 1680
  state board July report, 1597
NOSE, adenocarcinoma of, (24) 273
  anatomy of, (117) 1244
  asthma due to conditions in, (22) 273, (27) 1990
  atresia of postnasal orifice, congenital, (13) 974
  bacterins in affections of ear, throat and, (76) 509, (63) 707
  blood platelets for hemostasis in operating on, preparation of, (81) 978
  deformity, corrected by injection of paraffin, (134) 1328
NOSE deformity, correction of, by mechanical replacement and transplantation of bone, (129) 2164
  deformity, section of scapula in correcting, (50) 969
  deformity, submucous operation for, (36) 1055
  dysmenorrhea treated through, 1133—ab, (67) 1326
  epinephrin absorption from mucosa of, *208
  examination and treatment, points in, (38) 1885
  foreign bodies removed from, *1474
  gelatine tampon after operation on, (109) 1064
  headache originating from, (132) 1608
  Hemorrhage: See also Epistaxis
  hemorrhage in operations on throat and, horse serum in, 271—ab, (2) 1694, (90) 1791
  hemorrhage, postoperative, solution of silver nitrate to prevent, (91) 1791
  hemorrhage, uncommon case of, (104) 2163
  hydrorrhea, etiology of, (33) 273
  infection by diseased tooth-root, *549
  infection, focal, of throat, mouth, ear and, *1636
  influenza of throat and, chronic, (21) 1420
  malformation of chin and, with *exophthalmos and strabismus*, hereditary, (19) 1141
  myiasis of, (87) 1327
  nervous diseases associated with ear, nose and throat diseases, (66) 890
  operation on side wall of, through window of septum, (98) 1243
  pathologic conditions of throat and, and origin and treatment of hyperthyroidism, *769
  polypi, 1501—ab
  reflex, cases of nasal reflex, (126) 63
  relation of throat and, to some diseases met with in general practice, (52) 279
  sarcoma, multiple round-celled, originating in nares, (27) 1793
  screw-worms in nasal accessory sinuses and, *2288
  septum, (42) 2160
  septum, bisubmucous resection of, (6) 974
  septum, deviation of, operative treatment of, (33) 611
  septum, method of closing perforations of, *30
  septum, reconstruction of, after *submucous operation*, *1822
  septum, submucous resection of, complications, (88) 807
  sinus diseases and eye complications, tampon treatment of, (138) 199
  sinuses, accessory, and eye, physiologic and pathologic relations, (57) 197
  sinuses, accessory, and pathology of eye, (50) 1420
  sinuses, accessory, diagnosis of disease of, (44) 1325, (32) 2076
  sinuses, accessory, inflammation of, (92) 807, (60) 1982
  sinuses, roentgenoscopy of, (55) 197
  swelling in vicinity of, with nasal affections, (88) 69
  syphilis, (51) 969
  syphilis, latent and tertiary, in diseases of throat and, *1563
  syringe for ear, throat and, (64) 197
  trifacial neuralgia and conditions of, (170) 973
  voice affected by conditions of pharynx and, (82) 1097
NOSTRUM: See also Patent Medicines; Proprietary Medicines, Quackery
NOSTRUM advertising in Big Six medical journals, 1594—P
  advertising in Life, 1211—E, 1219—P
  exploiter, Detroit Saturday Night replies to argument of, 1686—P
  increase in sale of, 176
  proprietor brings libel action against British Medical Association, 958
NOTIFIABLE diseases in Vienna, (76) 1887
NOTT'S theory of insect causation of disease, (69) 1424
NOURRY Wine refused recognition by Council, 2150—P
NOVA SCOTIA Provincial Sanatorium, 793
NOVATOPHAN in sympathetic ophthalmia, (104) 608
NOVOCAIN poisoning, (44) 1697
NOVY, F. G., banquet in honor of, 333
NUCLEIN, nucleic acid and antibody, (21) 1985
NUCLEOPROTEIDS of dysentery bacillus, (115) 2032
NURITO, 1408—P
NURSES and hospital's success, (86) 1982
  contagious-disease, *1811
  demand and supply in nursing and, (59) 1424
  don'ts for, 2253
  general hospital, impressions of, in beginning work in psychopathic hospital, (29) 1324
  hospital and, (116) 2163
  in private practice 33 years ago and to-day, (95) 708
  kind of, wanted at front, 2144
  lay, instruction of, (50) 1701
  psychopathic, training of, (25) 1324
  registration law and requirements for accrediting schools for, (40) 427
  student, presentation of theoretical work to, (80) 1137
  trained, of to-day, (90) 708
  tuberculosis, aims and methods of, (6) 609
  tuberculosis among physicians and, (64) 429
  voluntary, costume of, 1491
  wet, in hospital practice, *1799
NURSING, amateur, 1965
  analysis of recoveries at psychopathic hospital, Boston, considered from standpoint of, (28) 1324
  as profession, (49) 806
  of insane, modern developments in, (24, 27) 1324
  of patients, (81) 1137
  organization and administration for tuberculous patients in country districts, (5) 609
  situation since passage of law in California, (50) 1697
NURSING-BOTTLES with tubes, 45
NUTRITION, carbohydrate in (14) 1427
  chronic deficient, and infection and clinical signs of decreased immunity, (105) 814
  composition of blood and constitution of child's body in relation to weight and, (67) 1988
  deficient, infants suffering from, (103) 1064
  experiments in, 190—ab
  foods and, *819
  hygiene of, (108) 354
  in pregnancy and development, part played by, 244—E
  intravenous and subcutaneous injections of sugar according to Kausch, (123) 2170
  intravenous, new experiences with, 1859—E
  nitrogenous compounds, simple, in, 1768—E
  of new-born infant, 404—E, (116) 714
  parenteral, surgical application, (38) 509
NYSTAGMUS through closed eyelids, (37) 1055

O

OBESITY and life insurance, (84) 1425
  electricity in, (66) 1430
  genital disturbances and disease in hypophysis, (59) 2264
  systematic impairing of appetite in treatment of, 1599—ab
  treatment, (100) 275
  treatment of arteriosclerosis and, (58) 2167
  with heart disease, prevention of accidents during treatment of, (32) 1794
  workman's claim for compensation for, 495
OBSTETRICS: See also Labor
OBSTETRICS among primitive and civilized peoples, (57) 352
  anesthesia, nitrous-oxid, 1500—ab
  anesthesia, spinal and local, in gynecology and, (134) 1608
  blood in gynecology and, (171) 285
  cases, interesting, (35) 432
  chair in, revival of, (27) 1231

OBSTETRICS, Champetier de Ribes bag in, (93) 608
  development of, (44) 60
  excessive rotation of back from prolapse of arm, (133) 283
  forceps in, abuse of, (54) 806
  hemorrhage in, (79) 68, (87) 435
  hemorrhage in, treatment, (125) 2164
  history of, in ancient Rome, (67) 67
  in tropical Africa, (82) 1838
  in Uganda, (14) 199
  injury of humerus, (110) 359
  inversion, pathogenesis of, and post-partum inversion of uterus, (4) 349
  lacerations, immediate diagnosis, (38) 2160
  Mauriceau's 17th century treatise on, 338—C
  operations, mutilating, (95) 69
  paralysis, (103) 353, *2282
  pituitary extract in, (102) 198, (48) 509, (74) 806, (133) 893, (112) 1234, (5) 1694, 1977—ab
  pituitrin in, 40 cases, (51) 509
  points of practical importance in, *815
  practical, (78) 1512
  practice, conclusions after 20 years of, 2,108 cases without maternal mortality, (119) 198
  problems in, (85) 1507
  serodiagnosis in gynecology and, (187) 362
  surgical, (64) 357, (183) 973
  technic, (110) 198, (45) 1137
  thyroid degenerations in relation to gynecology and, (12) 1694
  turpentine in gynecology and, (189) 362
OCCUPATION for tuberculous patients, 1317—ab
  therapy in organic disease, (22) 705
OCCUPATIONAL DISEASES: See Industrial Diseases
OFFICE and residence combined for physician, 432—ab, 1050—ab
OGSTON, Sir Alexander, address of, before British Medical Association, 490—E
OHIO medical news, 174, 252, 330, 412, 497, 588, 791, 876, 1040, 1123, 1214, 1402, 1680, 1772, 1953
  State Medical Journal and clean advertising, 872—E
  State University, medical education and fads, 1209—E
OIDIOMYCOSIS, (37) 1231
  in Porto Rico, *2289
OIL and ether rectum anesthesia, (77) 607, (45) 1325, (92) 1425
  camphorated, action of, on interchange of gases, (109) 2081
  camphorated, toxicity of, *579
  chaulmoogra mixture, for leprosy, (8) 2258
  of chenopodium, in uncinariasis, 1875—ab *1946
OKLAHOMA, higher preliminary education requirements in, 1412
  medical news, 330 589 876, 955, 1307, 1587, 1963, 2238
  reciprocity report, 2064
  state board April report, 503
  state board January report, 52
OLD AGE: See Aged; Geriatrics; Senility
OLFACTORY apparatus and brain, relation of, to immunity, (36) 273
OMENTUM, cystic lymphangioma of great, (5) 2309
  echinococcus cyst in, single, (78) 357
  gunshot wound of spleen patched with, (49) 1238
  in abdominal drainage, (43) 1055
  surgery of cavity of greater, (68) 1613
  torsion of, and chronic appendicitis, (55) 811
  torsion of, including loop of intestine, (63) 1238
  tumor of greater, (106) 1990
OMNOPON and opium, (2) 1058
ONTARIO Medical Association, meeting of, 1124
  Medical Council, 254
OOPHORECTOMY: See Ovariotomy
OPERATING room, phonograph in, 50
  room, technic in Royal Victoria Hospital, (61) 509
  room tinted (light gray), (68) 890
  sheets, black vs. white, 1844—ab
  table, fracture and orthopedic, combined, (107) 354
OPERATIONS, analysis of deaths occurring in course of one thousand five hundred seventy-three, (3) 1053
  and dressings, surgical, at Johns Hopkins Hospital, (57) 509
  at home, when justifiable? 1416—ab
  county not liable for cost of, on prisoner, 507—Ml
  damages for injury from hot-water bag in, 344—Ml
  differential atmospheric pressure as aid to, (35) 1429
  eruptions following, (151) 1603
  liability for, performed without consent in charitable hospital, 702—Ml
  local preparation of patients for, *474
  postoperative management of, (99) 353
  psychic shock following, (41) 1506
  refusal to permit, in its bearing on workmen's compensation and personal injury suits, (76) 435, (82) 978
OPHITHOXEMIA, fatal case of, (23) 709
OPHTHALMIA neonatorum, (27) 1329, 1392—T
  neonatorum, blindness due to, *1756
  neonatorum, prophylaxis of, (157) 972
  neonatorum, scientific aspect of, early, (127) 198
  neonatorum, states which require prophylactic for, 1608
  phlyctenular, etiology of, *566
  sympathetic, atophan or novatophan in, (104) 608
  sympathetic, report of 3 cases, (66) 1056
OPHTHALMOLOGY and rhinology, contact points of, with general medicine, (41) 196
  diathermia in, (61) 1331
  Knapp medal for research in, awarding of, 42
  research in, and training of ophthalmologists, *3
  sociologic aspects of, (131) 1328
  teaching of, (5) 1058
OPHTHALMOPLEGIA, (13) 967, (72) 1702
  isolated right, of malarial origin, (73) 1144
OPHTHALMOSCOPE, electric, new, (87) 607, (163) 973
OPIUM alkaloids and diabetes, 786—E
  alkaloids, pharmacologic action of, (79) 1425
  and astringents contra-indicated with intestinal insufficiency, (110) 2081
  and lead wash, use of, 421
  and omnopon, (2) 1058
  effects of continued use of, (141) 199
  French Anti-Opium League, 415
  habit, (111) 1234
OPTIC chiasm and binocular vision, (115) 354
  Nerve: See Nerve, Optic
  thalamus, hyperkinetic symptoms with partial lesion of, (78) 1697
ORBIT abscess with optic neuritis due to acute ethmoiditis in child, (107) 1698
  cancer of, removal with preservation of eyeball, (51) 356
  cellulitis, treatment of, (67) 1790
  enucleation with transplantation of fat into, *545
ORCHIDECTOMY for tumors of testicle, *2009
ORD Weekly Journal, Buck and Loeffler bring suit against, 337—P
OREGON medical news, 412, 876, 1123, 2238
ORGANOTHERAPY: See also Extracts of Organs
ORGANOTHERAPY, (19) 508
  with alkaloids from ductless glands, (74) 435
ORIENTATION of holothurian by light, (2) 2258
ORTHODIAGRAPHY for controlling action of digitalis in therapeutics, (114) 70
ORTHOFORM, idiosyncrasy to, *1666
ORTHOPEDIC Hospital, Seattle Children's, (56) 509
  operating-table, (107) 354
  operations, fat embolism in, (89) 1145
  practice, (147) 1328
ORTHOPEDIC principles, application of, to general surgery, (150) 972
  state clinic at Munich, (131) 205
  surgery, *2265
  surgery and neurology, (30) 1231
  surgery, every-day, (28) 1055
  surgery in war-time, (88) 1331, (55) 1795, (74) 2167
  treatment, in scoliosis, (79) 614
OS CALCIS: See Heel Bone
OSLER on control of tuberculosis, 414
  on military hygiene, 1217
  to the front, 1404
  urges typhoid vaccination, 877
OSMOTIC PRESSURE and isotonic solutions, origin of theories of, 1520—E
  influence of, on caliber of blood-vessels, (21) 355
OSTEITIS deformans, fibrous, with tumors in bones, (61) 812
  deformans of femur, (12) 194
  fibrosa, (103) 282
  fibrosa cystica, (186) 973, (17) 1879
  fibrosa, with intra-uterine fracture, (68) 898
OSTEO-ARTHRITIS, hip, early diagnosis, (21) 894
  juvenile deforming, (50) 977
  spine, (110) 1234
OSTEO-ARTHROPATHY, hypertrophic pulmonary, (22) 200, (137) 1983
OSTEOCHONDRITIS, juvenile deforming, (67) 517, (97) 1514
OSTEOGENESIS imperfecta, metabolism in, with reference to calcium, (4) 193, (84) 1063
OSTEOMA of frontal sinus, (172) 361
OSTEOMALACIA, (86) 1989
OSTEOMYELITIS, (55) 275, (97) 1697
  acute, of upper jaw in new-born infant, (55) 896
  chronic, (71) 1988
  hemorrhagic, (110) 511
  skull, extensive, from frontal sinusitis, (79) 1507
  trauma and, (164) 206, (120) 1244
OSTEOPERIOSTITIS due to bacillus columbensis, (23) 355
OSTEOSARCOMA: See Bones, Tumors
OSTEOTOMY, curving, for crippled knee, (37) 976
OTITIS MEDIA, acute purulent, acute mastoid disease due to, laboratory aids in diagnosis, (85) 275
  acute purulent complicated by diffuse serous labyrinthitis, (31) 1421
  acute suppurative, (74) 707
  acute suppurative, purulent labyrinthitis and leptomeningitis without rupture of tympanic membrane, (17) 278
  chronic catarrhal, (25) 1420, 1978—ab
  suppurative, (102, 103) 2075
  temporosphenoidal abscess and chronic, (30) 1420
  temporosphenoidal abscess secondary to, operation and roentgenographic findings, (31) 706
OTOLARYNGOLOGY, preventive, *2009
OTOLOGY, recent developments in, (120) 2164
OTORHINOLOGY, nasopharyngoscope in, (51) 279
OTORRHEA, (26) 1329, 2291—T
OTTAWA, typhoid indemnity claims against, 696
OUT-PATIENT DEPARTMENT: See Dispensary
OVARIECTOMY, extra-uterine pregnancy in stump following, (19) 1884
  for uterine hemorrhage, (69) 202
  sub-partu, (81) 806
  technic for, improved, (115) 519
OVARY and placentoma, effect of intravenous injection of substances affecting tumor growth on cyclic changes of, (77) 891
  cyst, cesarean section in primipara with, (10) 1235
  cyst, double, case of, (22) 1884
  cyst, double multilocular, cesarean section for, (110) 62
  cyst, hydatidiform mole with, (65) 711, (90) 1616
  cyst in 2 children, (68) 202
  cyst, retro-uterine hematocele from rupture of, (29) 65
OVARY cyst, ruptured, (73) 353
  cyst, torsion of, 1320—ab
  cystadenoma, pseudomucinous, clinical, malignancy of, (7) 350
  dermoids, fatty concretions in, (5) 507
  dermoids, malignant transformation of, (20) 975
  extirpation of, and vasomotor irritability, (27) 889
  fibromas, (29) 514
  implantation of testicle and, (101) 1607, (125) 1698, (87) 1791, (105) 1881
  morphology and functioning of, in health and disease, (62) 67
  papilloma on, (168) 285
  pseudostruma of, (4), 1230
  radiotherapy and changes in, (130) 71
  removal of, with disappearance of recurrent breast cancer, (29) 1605
  resection of, 1418—ab
  sarcoma of, in child of three, 1978—ab
  surgery, conservative, (95) 1697
  transplantation, 697
OVEREATING as cause of sickness, (199) 440
OVULATION, corpus luteum in menstruation and, (60) 811, 2232—E
OVUM, human, early, investigation of study of, (16) 610
OXIDASE in melanotic large intestine, (145) 284
OXIDATION processes, mechanism of, in animal organism, (98) 203
OXYGEN and carbon dioxid in blood, interrelation between, 2231—E
  pulse and systolic discharge, (25) 888
  subcutaneous injection of, (40) 1981
OXYPATHOR manager found guilty of using mails to defraud, 1769—E
OXYPATHY, 13—ab
OXYURIS and chronic appendicitis, (52) 515
  variation in, and nematode formula, (67) 1424
  vermicularis as carrier, (102) 1327
OZENA, atrophic rhinitis with, etiology and surgical treatment, (129) 1608
  etiology and vaccine therapy of, (98) 713
  treatment, present status of, (153) 72

P

PACHYMENINGITIS from peridental infection, *2027
  hemorrhagica interna, and chronic subdural hemorrhage of traumatic origin, (13) 2075
PADS in treatment of scoliosis, *2119
PAGET'S DISEASE OF BONES: See Osteitis Deformans
PAGET'S DISEASE OF NIPPLES: See Nipples
PAIN, immediate relief from, under Roentgen rays, (30) 1429
  in cardiovascular disease, (106) 1327
  in shoulder as phrenic-nerve symptom with acute surgical abdominal disease, (50) 1060
  referred, in gynecologic conditions, 1694—ab
PALATE, cleft, and hare-lip, management of, (73) 1233
  cleft, operation on hare-lip and, (15) 1329
  cleft, operative treatment for, (17) 808, (99) 813, (35) 2263
  cleft, prothesis for treatment, (42) 976
  cleft, technic for treatment of, (117) 1705
PALESTINE, social study of, 43
PALPATION, topographic, of ileocecal region, (188) 362
  under fluorescent screen, caution concerning, (80) 61
PANAMA, amebic dysenteries in, (2) 708
  canal, day set aside for commemorating completion of, 1589
  children, medical examination of, 1681
  entameba of man in, (1) 708
  morbidity and mortality in, 590
  private hospitals in, 590
  six day fever in, (4) 708
  uncinariasis campaign in, 2239
PAN-AMERICAN congress of university students, 996, 1042
  physicians, meeting of, 1681

- PAN-AMERICAN Surgical and Medical Journal, new organ of Louisiana State Medical Society, 249—E
- PANCREAS and liver syndrome, in diabetes, (96) 2081
  - calculi in, retroduodenal operation for, (62) 711
  - cysts in, (95) 1146, (4) 2309
  - diagnosis and treatment of diseases of, (94) 429
  - diagnosis of disease of, (49) 432, (52) 710
  - diastatic ferment in feces and variation in certain diseases of pancreas in achylia gastrica, (25) 705
  - direct examination of duodenum contents in diagnosis of diseases of gall-bladder and, (4) 1604
  - disease, (67) 1332, (15) 1793
  - disturbance, stomach or bile tract disease followed by, (109) 204
  - extract, effect of, on blood-pressure in acute experimental nephritis in rabbits, (123) 360
  - functional capacity of, test for, (106) 519
  - functional disturbances in, (146) 72
  - Islands of Langerhans in, (184) 439
  - necrosis, postoperative, (78) 713
  - secretion, action of sodium bicarbonate on, (132) 437
- PANCREATITIS, acute, (30) 200, (53) 1060
  - acute, operative treatment for, (102) 436
  - chronic, (28) 350
  - parotitis and, (76) 978
- PAPER bag receptacle for waste cotton, *1669
- PAPERS, medical, use of reference library in preparation of, (83) 1697
- PAPILLA, resection of duodenum with, for cancer, (63) 1331
- PAPILLOMA, bladder, high frequency destruction in, (39) 1422, (11) 2165
  - kidney pelvis, 2 cases, (75) 1797
  - larynx, *2207
  - ovary, (168) 285
  - peritoneal, and tuberculosis, differential diagnosis, (14) 58
  - ureter mouth hidden by, (40) 66
  - vocal cords, multiple, (108) 1234
- PAPILLORETINITIS, transferred, or sympathetic optic neuritis, (162) 973
- PAPINE, 1411
- PARACENTESIS of tympanum, indications for, (30) 1135
- PARAFFIN for constipation, (101) 1138
  - nasal deformities corrected by injection of, (134) 1328
  - oil, use of, 1411
  - prothesis for eyeball, (76) 1432
  - to make artificial tumor in pineal gland region, technic for injection, (151) 438
- PARAGEUSIA, treatment, (123) 2164
- PARAHYDROPHENYLETHYLAMIN, pressor compound in American mistletoe, (73) 1697
- PARALYSIS agitans syndrome with syphilis of nervous system, (25) 1054
  - birth, unusual form of, *2282
  - brachial plexus, symptomatology of, (104) 436
  - Brown-Séquard, 1976—ab, (13) 2311
  - colchicin, long use of, cause of, (54) 202
  - deltoid, arthrodesis of shoulder to correct, 9 cases, (91) 1616
  - diphtheria followed by, (101) 1425
  - facial, peripheral, bilateral, *1155, (39) 1880
  - facial, peripheral, bilateral, with specific disease of labyrinth, (98) 62
  - facial, surgical treatment, (32) 2260
  - general, (3) 703, (128) 971
  - general, differential diagnosis of, (4) 703
  - general, early, transient lesions in, (86) 1881
  - general, importance of early recognition, (116) 1234
  - general, juvenile, (52) 1697
  - general, Lange gold-sol test in, (81) 1881
  - general, of insane, (117) 1327
  - general, of insane, treatment of, (30) 427
  - general, pathology of, (2) 1878
- PARALYSIS, general, relation of symptoms of syphilis to subsequent tabes or, statistical study, *459
  - general, salvarsan, intraspinal injections in tabes dorsalis and, articles in, 1781
  - general, salvarsanized serum in, *1274, 1878—ab
  - general, treatment, (58) 67
  - in children, diagnosis of, 1501—ab
  - Infantile: See Poliomyelitis, Acute Anterior
  - intestine, pituitrin in, following laparotomy, (157) 277
  - Landry's, (115) 70, *1845
  - Landry's acute ascending, and adult poliomyelitis, (79) 1697
  - Landry's, and acute epidemic poliomyelitis, relation of, (114) 198
  - larynx, nerve grafting for, (104) 1888
  - legs, familial transient, in northwestern France, (16) 974
  - musculocutaneous nerve, 2 cases, (79) 2168
  - obstetric, (103) 353
  - ocular, due to tabes, pathology of, 2257—ab
  - ocular muscle, (13) 967, (72) 1702
  - ocular muscle, external, in lead poisoning, *403
  - ocular muscle, isolated right, of malarial origin, (73) 1144
  - oculomotor, of otitic origin, (10) 2261
  - polyneuritis following diphtheria with pains, ataxia and, (60) 1238
  - Pott's, Albee's operation in, (68) 509
  - progressive, neosalvarsan in, (142) 72
  - progressive, under tuberculin, 10 cases, (78) 2168
  - quadriceps muscle, (32) 1060
  - rectus muscle, external, congenital, with spontaneous rolling up or eyeball on attempt at adduction, (261) 364
  - rectus muscle, external, due to abscess in apex of petrous pyramid, death from basal meningitis, (5) 974
  - spastic, Foerster's operation in, (67) 812
  - spastic, rhizotomy for, (7) 2075
  - spastic, Stoffel's operation for, (47) 66
  - specific treatment of tabes dorsalis and, 2158—ab
  - spondylitic, laminectomy for, (71) 435
  - syphilitic axillary, and aneurysm, (51) 1430
  - thread and wire extension from skin in fractures and, (104) 615
  - trapezius muscle, direct implantation of nerve in muscle and neurotization corrects, (127) 71
  - Volkmann's ischemic, (148) 1328
- PARAMENINGOCOCCUS, antiserum of, (34) 1135
- PARAMETRITIS, posterior, and backache, (80) 1326
- PARAMYOCLONUS multiplex with necropsy showing lymphocytic infiltration of pia, (54) 606
- PARANOIA, dementia praecox and paraphrenia, (8) 1878
  - what is? (2) 703
- PARAPHIMOSIS, treatment of, (104) 1064
- PARAPHRENIA, dementia praecox and paranoia, (8) 1878
  - Kraepelin's conception of, *766
- PARAPLEGIA, operation for, followed by improvement, (96) 62
- PARASITES, intestinal, in adults, 2158—ab
  - of bat malaria, (13) 1984
  - tropical worm, causing malady resembling uncinariasis, 688—E
- PARASITOLOGY, American Journal of, 42
  - in Brazil, history of, (74) 1614
- PARASYPHILIS, lesions of syphilis and, (2) 2164
- PARATHYROID, (28) 1135, (52) 1987
  - deficiency and sympathetic irritability, (8) 272
- PARATYPHOID and typhoid vaccination, (44) 1605
  - blood-cell picture in, and after vaccination with bacillus typhosus, (43) 1605
  - clinical features of outbreak of, (42) 1605
  - epidemic of, at Boston State Hospital, 1910, (41, 45) 1605
  - inoculations, (25) 1428
- PARATYPHOID intoxication, 50 cases, (63) 2264
  - meat poisoning and, (105) 1888
  - necropsy findings in, (70) 68
  - simulating typhoid, (59) 1613
  - typhoid and, (68) 1988, (72) 2079
- PARENT, manslaughter in failure of, to provide for child, 2308—Ml
- PARESIS: See Paralysis, General
- PARIS, census and provisioning of, 1217
  - letter, 44, 176, 255, 334, 415, 495, 592, 1043, 1217, 1310, 1590, 1684, 1775, 1868, 1967, 2055, 2145, 2241
  - medical faculty, curious custom of, 787—E
  - medical school, resumption of courses in, 2055
  - war conditions in. 957
- PARKE, Davis & Co., attempt of, to teach physicians therapeutics, 338—P
- PARONYCHIA, periosteal, (36) 1985
- PAROTID GLAND, new outlet for, (135) 72, (178) 285
  - retention tumor of, (52) 1143
- PAROTITIS in barracks, (75) 1887
  - investigation of, 414
  - pancreatitis following, (76) 978
  - suppurative, experimental research on, (25) 1141
  - tuberculosis of, (102) 2163
- PARTHOGENESIS of human beings, (119) 616
- PARTNER, physician held entitled to injunction against former, 1226—Ml
- PARTNERSHIP, contract not to practice medicine abrogated by one of, 506—Ml
- PARTURITION: See Labor
- PASTEUR, Louis, (49) 509
  - treatment and epilepsy, (93) 614
- PATELLA, dislocation, congenital, (79) 357
  - dislocation, habitual, treatment for, (108) 70, (125) 283
  - fracture, arthrotomies for, review of ninety-nine, (40) 350
  - fracture, diagnosis and treatment, (81) 1867
  - fracture, subcutaneous, treatment, (79) 1432
  - fracture, symptom, (144) 206
  - fracture, treatment, (75) 2074
  - luxation, recurrent, (15) 432
  - suture, (116) 436
- PATENT MEDICINE: See also Nostrums; Proprietary Medicines; Quackery
- PATENT medicine influence, 2049—E
  - medicine interests and control of press, 2049—E, 2062—C
  - medicines, report of select committee on, 1046—P
- PATENTS, German trademarks and, in England, 1310
  - on certain chemicals expiring, 693—E
- PATHOLOGY, 1812—ab
  - living, (8) 58
- PATIENT and disease, (5) 2310
  - delirious, jumping from window, hospital liable for death of, 1875—Ml
  - hospital, offensive familiarity toward, 593
  - method of carrying, without litter, (85) 1327
  - treating the, not name of a disease, 1037—E
  - who testifies waives privilege, 1876—Ml
- PATTEN, J. A., 258—P
- PAWLIK, Prof., death of, 1681
- PEANUT milk in infant feeding, (44) 1429
- PEAS, advantages of dried beans and, in diabetes, (45) 811
- PEDIATRICS, diagnosis in, recent advances, (49) 2261
  - First National Congress for, in Spain, 494
  - morphin in operations and, (84) 1989
  - roentgenology in, (17) 1979
  - special training in, (7) 507
  - teaching of, in 16 southern states forming Southern Medical Association, (19) 1054
  - tuberculosis work and, (34) 1605
- PEDICULUS, (10) 1427
  - capitis, transmission of diseases by, (94) 1146
- PELLAGRA, (133, 139) 199, (111) 608, (39) 611, (107) 970, (40) 1325, (66) 1606
  - beans for prevention of, 1314—C
  - Commission, Thompson-McFadden, 1090, (48) 1422
- PELLAGRA, diagnosis of, (21) 1054
  - diet as factor in etiology of, 1114—E
  - digestive symptoms of, (129) 431
  - English, in early childhood, (8) 1139
  - etiology of, experimental inoculation of monkeys and rabbits, (128) 431
  - first symptom in, (130) 431
  - food and location of domiciles in 6 industrial communities and, (49) 1423
  - gastro-intestinal and oral lesions in, importance of, (30) 1324
  - gastro-intestinal tract in, (132) 198
  - in city hospital, (100) 892
  - in England, (36) 432
  - in Minnesota, *1157
  - in southwestern Russia, (71) 1614
  - insects and, 2 years' study, (66) 1424
  - intestinal parasite cause of, (30) 1788
  - medicolegal relations of, (86) 1507
  - picric acid in, 1599—ab
  - psychosis with, (88) 353, (58) 1880
  - sewage disposal and spread of, (20) 1695
  - spreading of, (66) 1790
  - thyroid in, *2129
  - transmission of, to monkeys, attempts to, *1093
  - treatment of, (110) 608, *1094, (72) 1326
  - water and, 868—E
- PELLAGRINS, protective ferments against maize-albumin in serum of, (78) 1241
- PELVIS, contracted, abdominal cesarean section for, in child of 12, (95) 62
  - contracted, in pregnancy and labor, treatment, (5, 6) 1508, (76) 1614
  - contracted, shape of fetal skull with, (147) 206
  - fracture, (117) 198
  - fracture of, and sacro-iliac joint separation, (72) 353
  - fracture of, with rupture of bladder, (108) 1057
  - fracture of, with rupture of urethra, (101) 1234
  - inflammations of female, and drainage, (84) 510
  - raising the, (105) 436
  - reflexes, abdominal, cutaneous, in acute conditions in abdomen and, (150) 1608
  - sarcoma of, primary, (24) 1141
  - supports, relaxed, 3 cases, (43) 1697
  - tumor, dating from Roman times (250 A. D.) found in Egypt, (24) 278
- PEMPHIGUS neonatorum, *1159
  - neonatorum, contagious, (167) 285
- PENCIL, syphilitic lesion, primary, from practice of holding, (63) 613
- PENIS, phlebitis of, simulating edema induratum complicating acute gonorrhea, (58) 806
- PENNSYLVANIA, drugless therapy in, rules governing, 421
  - medical news, 41, 174, 253, 331, 412, 493, 589, 694, 792, 876, 956, 1041, 1123, 1214, 1307, 1402, 1588, 1680, 1773, 1864, 2052, 2142, 2238
  - state board June report, 1130
- PENSIONS, old age, in Denmark, 800—ab
- PENTOSURIA, case of, (50) 605
- PEPTONE, crude silk, purification of, for bacteriologic purposes, (31) 1985
  - free medium for growing tubercle bacilli, (32) 1700
- PERCUSSION and auscultation, origin of, and state of clinical medicine in time of Auenbrugger and Laennec, (64) 1137
  - displacement of strong percussion stroke by lighter, Goldscheider's method, *320
  - of lungs, *1378
  - sign for detecting fluid in pleura, (35) 967
- PERCY treatment of inoperable cancer of uterus, *817
- PERIARTERITIS nodosa, 2 cases, (22) 1695
- PERICARDITIS, 269—ab
  - adhesive, (85) 1798
  - adhesive, and disappearance of normal lateral vertical change of position in heart on changing from lying to standing position, (86) 713

PERICARDITIS, purulent, operative treatment of, (73) 898
  with effusion, diagnosis and puncture in treatment of, (65) 280
  with effusion, new sign differential between dilatation of heart and, (115) 1426
  with effusion, puncture in, (155) 284
  therapeusis of, *302
PERICARDIUM, adherent, diagnosis of, (80) 435
  bullet in, (30) 351
PERICHONDRITIS, isolated, of ensiform process, (65) 2167
PERICOLIC MEMBRANE: See Jackson's Membrane
PERICOLITIS, chronic, and inflammation of cecum, (59) 1060
PERICYSTITIS, surgical management of, (89) 1425
PERIDENTAL infection factor in nervous diseases, *2027
PERINEORRHAPHY, intrapelvic, fundamental, *538
  levator ani versus bulb-cavernosus in, 1047—C
  primary, by buried and sub-surface catgut suture, (64) 509
  suture of levator ani in, 696, (18) 808, (75) 1056
PERINEPHRITIS, kidney calculus perforation cause of, (75) 202
  phlegmonous, gangrene of kidney from, (133) 72
PERINEUM, laceration of, (132) 71
  lacerations, immediate diagnosis, (38) 2160
  operation, office-boy, 1688—C
  rupture of, complete, mobilization of rectum in repair of, (28) 976
  tears of cervix of uterus and, importance and significance of, (174) 973
PERIODONITIS, chronic, general, (20) 1329
PERIOSTEUM, function of, (105) 511
  regeneration of, negative experimental experiences in regard to, (53) 976
PERIOSTITIS, spontaneous fracture after, from overuse, (52) 976
  traumatic, of lumbosacral spine, diagnosis of, (6) 272
  typhoid, chronic, (19) 350
PERITONEUM abscesses, encysted, two-time treatment of, (120) 510
  adhesions, amniotic membrane in preventing, (154) 277, 1229—ab
  adhesions, nature of, (20) 894
  adhesions, prophylaxis of, (36) 1238
  aviator's arrow pierces shoulder and, (71) 2167
  cyst of traumatic origin, (16) 354
  echinoccoccus, secondary multiple, complicating acute appendicitis, (38) 1325
  fibrosarcoma, primary, (185) 439
  flaps, (99) 1334
  lymphangio - endotheliomatous growths of, (43) 1421
  papilloma of, and tuberculosis, differential diagnosis, (14) 58
  pseudomyxoma in, of appendicitic origin, (101) 1514
  tuberculosis, miliary, of meninges and, secondary to tuberculous metritis, (50) 66
PERITONITIS, acute, modern treatment of, (92) 1063
  aggressins in appendicitis and, (41) 432, (44) 710
  epinephrin content of adrenals markedly reduced during, (34) 976
  epinephrin in, action of poisons on blood-vessels of inflamed tissues and of, (98) 1990
  perforative, relation of localized tenderness to, (33) 427
  prevention of, in belated cases of intra-abdominal infection, with reference to iodin, (32) 1696
  streptococcus, in children, (39) 514
  surgical aspect of diseases producing, (190) 973
  tuberculous, acute, (99) 282
  tuberculous, acute, in puerperium, (109) 1354
  tuberculous, articles on, 1495
  tuberculous, extra-uterine pregnancy with, (16) 64
  tuberculous, without clinical manifestations, (166) 206
  ulcerative pneumococcus enteritis with, following lobar pneumonia, *2288
PERKINS and Ross' iron solution, 1778—P
PERONEUS tendon, dislocation of, (91) 517
PERSONALITY, dissociated, (7) 1135
PERTUSSIS: See Whooping Cough
PESSARY, intra-uterine, dangers of, (91) 1514
  stem, dangers in use of, (8) 1694, (86) 1887
PETECHIAE in diagnosis and prognosis, value of, (15) 1324
PETRI dish cover, new, *1031
PETROLATUM in constipation, (56) 356
PETROSAL sinus, hemorrhage from superior, *468
PFANNENSTILL and Friedmann technics in tuberculous laryngitis, (103) 70
PHAGOCYTOSIS, effect of cholesterol on, (86) 2162
PHARYNX, abscess in side of, (22) 1059
  diagnosis of diseases of, from general practitioner's standpoint, (105) 2075
  teratoma of, (106) 1698
  voice affected by conditions of nose and, (82) 1697
PHECOLATES refused recognition by Council, 1870—P
PHECOLAX refused recognition by Council, 1870—P
PHECOTONES refused recognition by Council, 1870—P
PHECOZYMES refused recognition by Council, 1870—P
PHENOL and camphor in local treatment of phlegmons in joint and tendon sheaths, (89) 2080
  in bladder tuberculosis, (91) 1138
  injections in hydrocele, *2219
  injections in tetanus, recovery, (58) 1605
PHENOLAX, poisoning from, 1410
PHENOLSULPHONEPHTHALEIN Test: See Test, Phenolsulphonephthalein
PHILIPPINES, health of government employees in, 333
  health report for last quarter 1913, 165—ab
  infant mortality in, 487—E
  medical geography of, (134) 1698
  spirochete and fusiform bacilli in lesions in, (32) 1788
PHLEBITIS in Malta fever, (155) 206, (98) 1888
  penis, simulating edema induratum complicating acute gonorrhea, (58) 806
  puerperal, calcerous shell in external iliac vein 20 years after, (6) 349
  syphilitic, early, 2 cases, (108) 2169
PHLEGMONS, aponeuroses in axilla in relation to, (61) 356
  gas gangrene and, (30) 2311
  gaseous, (98) 518
  hand, treatment, (35) 976
  of upper respiratory tract, (118) 2164
  phenol and camphor in local treatment of, in joint and tendon sheaths, (89) 2080
  woody, and inflammation of thyroid, (112) 713
PHLYCTENULAR eye affections, bacillus of bovine tuberculosis in, (25) 610
PHONOAUSCULTATION, (116) 1889
PHONOGRAPH in operating room, 50
PHOSPHATES, excretion of, in infants, 1193
PHOSPHORUS and calcium preparations, inorganic and organic, action of, on metabolism in recent rachitis, (55) 1987
  content of casein, (64) 1232
  estimation of, in biologic materials, (38) 605
  metabolism of calcium, magnesium, sulphur, nitrogen and, in acromegaly, (35) 1135
PHOTOGRAPHIC evidence and tracings, admissible to show physical condition, 1318—MI
PHOTOGRAPHS, medical, technic for taking, (34) 2263
PHOTOGRAPHY and medical sciences, (36) 1231
  flashlight autochrome, of pathologic subjects, (33) 1605
PHOTOPHOBIA with conjunctivitis, local anesthetic in, (126) 205
PHOTOTHERAPY in small-pox, (77) 1989
PHRENICOTOMY, roentgenologic control of action of, (84) 203
PHTHISIS: See Tuberculosis, Lung
PHTHISIS bulbi, congenital, *1949
PHYLACOGENS, (32) 190
  and mixed vaccines, 785—E
  for typhoid, 1687—P
PHYSICAL and chemical therapeutic measures and distribution of blood, (72) 516
  condition, tracings and photographic evidence admissible to show, 1318—MI
  examination and efficiency, 545—ab
  examination and physical exercise, 1951—T
  examination, courts without power to order, 1227—MI
  examination, federal court without power to order, 2157—MI
  examination, second, allowed to defendant misled by first, 1415—MI
  peculiarities, familial, inheritance of, (160) 361
  therapy, (99) 275, 1693—ab
  therapy and hospital patient from point of view of internist, *1731, *1739
  therapy in cancer, (13) 1879
  training in U. S. navy, new method of, (96) 1057
PHYSICIAN: See also Medicine, Practice of; Profession, Medical
PHYSICIAN, (58) 606
  ancient, 1255—ab
  and surgeon, what is required of, 1226—MI
  appointed on Austrian army medical staff, 1405
  as committee of lunatic, 2067—MI
  asepsis in office practice, (88) 429
  at front, fatalities among, 1309, 1965
  at front, impressions of, (68) 1886
  attendance by, on wife in labor, 2250
  attending, versus experts on mental condition, 801—MI
  Belgian funds required for, 1866
  Belgian, on French ships, 2055
  Belgian, privileges for, 1967
  better qualified, result of elimination of inferior medical colleges, 692—E
  brotherhood of, (85) 1697
  calling on, etiquette of, 1971
  charging ten dollars an hour for detention services, 189—MI
  civilian, at base hospital, (61) 1510
  Colorado, professional responsibilities of, 1229—ab, (59) 1605
  communications to, what constitute waivers of privilege and, 1785—MI
  connected with state institutions, dual responsibility of, 602—ab
  consultant, privilege extends to, 268—MI
  country, and cut fees, (72) 429
  country, position of, in 1879 and to-morrow, (6) 708
  country, surgical work in cottage by, plea for, (15) 199
  decorated for bravery in field, 1866
  decorations for, 2053
  district, full-time, in Cincinnati, (100) 1234
  drugged, marriage of, to nurse annulled, 2307—MI
  entitled to injunction against former partner, 1226—MI
  entitled to recover expenses and compensation, 801—MI
  entitled to show who employed, 801—MI
  failure of, to attend wife, no damages for mental anguish for, 602—MI
  family, (57) 1697
  family, new conception of, 2151—ab
  fees obtained on representations that incurable diseases can be cured, validity of statute providing for revocation of licenses of, 54—MI
  general, and public health, (99) 510, (144) 1699, (30) 1880
  general, compelled to do eye work, practical points for, (88) 892
  general, passing of, 339—ab
  German and Austrian, decorated for gallantry at front, 1965
  German, Iron Cross for, 1490, 1589, 2243
PHYSICIAN, German, memorial to, 1215
  half-holidays for, in Bohemia, 43
  hospital and, (114) 2163
  in China, (26) 427
  in recent French plays, (7) 1235
  liability for patient under own, getting poison in hospital, 1784—MI
  localities without, and physicians without patients, result of war, 1868
  made agent to contract with hospital for care of injured employee, 1414—MI
  may testify as to usual effect of nervous shock, 2157—MI
  military, homage to, 177
  non-resident, standing of, 1411
  not liable for hot-water bottle injury in hospital, 1132—MI
  offer services for war, 696
  office and residence, combined, 423—ab, 1050—ab
  power of school boards to require physical records of pupils by, 1318—MI
  public and, relation of, (78) 353
  purchasing and dispensing of drugs by, (44) 1055
  relationship of, to surgeon, (106) 198
  scarcity of, no danger, 692—E
  Shakespeare as, (63) 352
  shortage of, in England, 1124
  Swiss, and wounded, 1591
  trials and rewards of, (45) 1137
  true, (73) 275
  truth-telling by, 1827—ab
  tuberculosis among nurses and, (64) 429
  unauthorized use of name of, 2063—C
  wife of, (61) 434
PHYSICOCHEMICAL methods in medical sciences, beginnings of, 1580—E
PHYSICOTHERAPY, cardiovascular system under, (129) 436
PHYSIOTHERAPY and psychotherapy in psychoneuroses, value of association, (34) 65
PIA, lymphocytic infiltration of, and paramyclonus multiplex, (54) 606
PICTURES, MOVING: See Cinematograph
PILLOW extension bandage for fracture of leg, (39) 1985
PILOCARPIN in high blood-pressure, 349—ab, (106) 1881
PINEAL GLAND, artificial tumor made by injection of paraffin in region of, (151) 438
  somatic, sexual and mental development in relation to, *232
PINEWOOD sawdust as surgical dressing, (9) 1793, (22) 2075
PINK-EYE, (31) 1329
PIORKOWSKI'S tuberculosis treatment, (150) 360
PIROPLASMA or babesia, (26) 2165
von PIRQUET and salve tuberculin tests for tuberculosis in children, (123) 1244
  and subcutaneous tests in tuberculosis diagnosis in adult, comparative value of, 349—ab
  reaction for tuberculosis in adults, 883
  skin tuberculin reaction, (94) 1989, 2068—ab
PITUITARY BODY: See Hypophysis Cerebri
PITUITARY EXTRACT, *476
  action of, on acute heart failure and uncompensated heart lesions, 271—ab
  and atony of uterus, (182) 286
  and epinephrin in acute infectious heart weakness in children, (147) 284
  and milk secretion, 2292—E
  effect of, on uterine contractions in labor, (73) 517
  from gravid and non-gravid animals, action on smooth muscles, (61) 67
  hour-glass contraction of uterus following use of, (111) 354
  in amenorrhea, (85) 1241
  in control of symptoms of pneumonia which favor hypotension, (11) 1604
  in obstetrics, (102) 198, (48) 509, (74) 806, (133) 893, (112) 1234, (5) 1694, 1977—ab
  intramuscular injection of, and secretion of milk, (21) 1605
  new standard for determination of strength of, (94) 970

PITUITARY EXTRACT of anterior lobe, (47) 279
  solution, 2043
PITUITRIN, (128) 63
  ecbolic action of, (90) 1697
  in intestinal paresis following laparotomy, (157) 277
  in obstetrics, 40 cases, (51) 509
  influence of, on respiration, (11) 1503
PITYRIASIS ROSEA, case of, (130) 1983
  of Gilbert, (14) 2261
PLACENTA, blood from, for transfusion, (135) 971
  centralis, cesarean section for, (83) 607
  examination of, for gaps, (64) 1511
  manual removal of membranes and, (68) 353
  praevia, (101) 708, (92) 1327
  praevia, study of fetal heart sounds in, 1978—ab
  praevia, treatment of, 290, (115) 510, *817
  prolonged retention of, after full term extra-uterine pregnancy, (134) 616
  retained pieces of, significance and treatment, (131) 283
  retroplacental hemorrhage from normally situated, (168) 206
  serum from, technic for obtaining, 502—C
PLACENTOMA and ovaries, effect of *intravenous injection of* substances affecting tumor growth on cyclic changes of, (77) 891
PLAGUE, (25) 709
  among camels in epidemic of Astrakhan plague, (79) 1615
  bacteriology and pathology of, (92) 1982
  bubonic, (34) 1789
  bubonic, early cases of, in New Orleans, (49) 1055
  bubonic, prophylaxis and treatment of, (21) 2311
  diagnosis and transmission, 167—E
  disappearance of typhus, relapsing fever and, from civilized countries, (74) 1241
  electrargol in small-pox and, (12) 199
  in Europe, incidence of, (9) 2261
  in Havana, late outbreak of, (3) 603
  in Java, (124) 616, (102) 980
  in New Orleans, 38—E, 43, 253, 792, 877, 956, 1124, 1215, 1309
  in Philippines, reappearance after 6 years, (117) 430
  in 16th century and now, 183—C
  pneumonic, histology of lesions in, (7) 1058
  situation, 175, 332, 413, 589, 695, 1404
  typhus, relapsing fever and meningitis during war, 1218.
PLANTS, action of drugs on, (33) 2165
  albumin, protective ferments against, (55) 515
  tumors in animals and, and frequency of cancer in man, 1502—ab
PLASMA, oxalated, effect of filtration through Berkefeld filter on coagulability of, (19) 1604
  removal with return of corpuscles, (98) 970
PLASMODIUM falciparum, malaria due to, (27) 709
PLASTER, adhesive, dressing for harelip operations, (100) 1243
  bandage with hare-lip operation, improved technic for, (128) 71
  cast, fenestrated, to induce local passive hyperemia, (23) 1509
  corset, mechanics of, in scoliosis, (9) 1788
  of-Paris cast in scoliosis, mechanic of, *2119
PLATES, Stilling's color test with reference to, (119) 1882
PLATINUM wire for bacteriological purposes, meteor wire to replace, 1315
PLAUT-VINCENT'S ANGINA: See Vincent's Angina
PLEOMORPHIC branching organism isolated from case of chronic rhinitis, (31) 1504
PLEURA, cystoscope for examination of, (160) 438
  effusion, mediastinal, (28) 1793
  effusion of artificial pneumothorax, 2068—ab
  effusion, pneumonia and empyema, (36) 2260
PLEURA effusion, vocal fremitus with, (137) 2170
  empyema of, treatment of, 21 cases, (138) 2170
  fluid in, percussion sign for detecting, (35) 967
  lymph flow, cause of increase and decrease of; (128) 1328
  traumatic rupture of mediastinal, (87) 203
PLEURECTOMY for chronic empyema, 2 cases of, (32) 350
PLEURISY, (76) 429
  autoserotherapy in, (252) 364
  hemorrhagic effusion in, (58) 711
  interlobar, signs of, (21) 1059
  postoperative, with effusion and empyema, (143) 1608
  treatment of emphysema and, (92) 1242
  treatment of threatening conditions in, (66) 613
  tuberculous effusion in, artificial pneumothorax for, (47) 1510
PLUMBING and health, 784—E
PNEUMATOSIS, intestinal, (32) 611, (44) 976
  intestinal cystoid, (38) 2263
PNEUMATURIA, one case, (36) 65
PNEUMOCOCCUS enteritis, ulcerative, with peritonitis following lobar pneumonia, *2268
  hemotoxin, (72) 1606
  infection and lobar pneumonia, (12) 604
  infection in rabbits, leukocytic extract in, (25) 1980
  infection of eye, modern therapy of. (111) 1882
  infection, splenectomy in, (126) 1706
  meningitis, (81) 1703, (85) 1791
  meningitis, prognosis of, (129) 2170
  methemoglobin produced by, (73) 1606
  vaccine, 1295, 1577
  vaccine in psoas abscess, (18) 354
PNEUMOGRAPH, instrument for recording respiratory movements graphically, (61) 1326
PNEUMOLYSIA, interpleural, (104) 510
PNEUMONIA, (139) 893, (95) 1507
  acute, pneumococcic arthritis following, (15) 609
  antipneumococcus serum in, (45) 274
  atypical, of infants and children, (127) 1328
  blood-pressure in, *311, (11) 604
  camphor in, large doses, (108) 2081
  childhood, (168) 973
  crisis in, (20) 1059
  epinephrin, action of, on blood-pressure in typhoid and, (112) 2032
  experimental, (66) 812
  fulminant, scrofula and status lymphaticus, (9) 1609
  heart-block in, functional, *577
  heart in, (142) 437, (89) 713, *931
  hexamethylenamin in, (88) 1615
  in cholera, (1) 1983
  leukocytic extract in, (30) 1980
  lobar, agglutination phenomena in, (25) 2259
  lobar, and pneumococcus infection, (12) 604
  lobar, symptomatology, diagnosis and prognosis, (34) 2260
  lobar, ulcerative pneumococcus enteritis with peritonitis following, *2288
  mortality and prevention, (37) 2260
  pathology and etiology of, recent developments in, (33) 2260
  pituitary extract in control of symptoms which favor hypotension and, (11) 1604
  pleuritic effusions and empyema with, (36) 2260
  purin enzymes in lung in, (85) 435
  serotherapy of, (63) 606
  simulating membranous croup, (41) 514
  staphylococcus albus, cause of, (93) 1514
  treatment, (28) 59, (42) 196, (35) 2260
  vasomotor apparatus in, (17) 888, 1303—E
  venesection in, (94) 1507
PNEUMOSAN in lung tuberculosis, (24) 894
PNEUMOTHORAX, air composition in, (84) 713
  artificial, (59) 67, (162) 206, (44) 356, (43) 889, (48) 2073
PNEUMOTHORAX, artificial, and pregnancy, *1110
  artificial, cutting adhesions in preparation for, (83) 1797
  artificial, defects and remedies for, (22) 513
  artificial, Forlanini's, (25) 1880
  artificial, in bronchiectasia, (81) 1512
  artificial, in lung abscess, (80) 1507
  artificial, in lung tuberculosis, (42) 968, (52) 969, (148) 972, (13-15) 1230, (123) 1327
  artificial, in tuberculous pleuritic effusion, (47) 1510
  artificial, lungs after 7 months of, in dog, (217) 363
  artificial, *new applications of*, (22) 1605
  artificial, pleural effusions of, 2068—ab
  artificial, Santoro prize to discoverer of, 1865
  artificial, technic for, (94) 282, (141) 284, (16) 508, (56) 612, (92) 1616
  Association, proposed, 49—C, 263—C
  for hemoptysis, (25) 605
  spontaneous, 348—ab
  treatment of acute threatening conditions with, (74) 812
PODOLAX, 595—P
PODVYSSOTSKY, V. V., works of, (174) 439
POHL'S method for removing blood, 340
POISON containing bottle, new, (88) 2074
POISONING, benzol, blood findings in acute and chronic, (121) 2170
  boric acid, from dressing, 593
  carbon monoxid, in Senghenydd explosion, (8) 513
  carbon monoxid, on steamship, (76) 1511
  cedar, 1872
  chineonal, fatal, (65) 1431
  copper, chronic, from alloy filling of tooth, (80) 812
  egg, and asthma in children, (26) 1880
  ergot, isolation of ergotinin crystals from organs in acute, *1203
  fish, action of digestive ferments on, (218) 362, (96) 1989
  fish, bacillus of, (85) 1146
  food, from eating canned string beans, (29) 1696
  lead, electrolytic prevention of, (25) 1611
  lead, electrolytic treatment of, (26) 1611
  lead, in smelting and refining industry, 1482—E
  liability for patient under own physician getting, in hospital, 1784—Ml
  luminal, case of, (214) 362
  male-fern, fatal, in clinically latent Addison's disease, (47) 2264
  male-fern for vermifuge, unusual case of, fatal, *242
  meat and paratyphoid, (105) 1888
  mercuric chlorid, (52) 1231
  mercury bichlorid, with recovery, (75) 429, (75) 1982
  mushroom, (18) 427, (136) 2170
  novocain, (44) 1697
  potassium permanganate, fatal, (57) 1511
  snake, symptoms and treatment, (90) 1982
  veronal, chronic, (75) 2168
  wild sweet potato, 1315
POISONS, action of, on blood vessels of inflamed tissues and of epinephrin in peritonitis, (98) 1990
  action of, on blood-vessels of liver, (97) 1990
  action of, on blood-vessels of lungs, (255) 364
POLIOMYELITIS, (185) 973
  acute anterior, (5) 426, (79) 509, (120) 1426, (8) 2164
  acute anterior, and Landry's paralysis, (114) 198
  acute anterior, entitled to recover for quarantining, 1132—Ml
  acute anterior, *entrance of* infective agent of, into body, 1396—E
  acute anterior, localization of virus and pathogenesis of, (38) 1136
  acute anterior, surgical treatment, (21) 64, (130) 971, (86) 1425
  acute anterior, tendon transplantation after, 1229—ab
POLIOMYELITIS, acute anterior, treatment, (80) 509
  acute anterior, treatment of deformities following, (1) 63, (93) 1327, 1501—ab
  adult type, (1) 1230
  adult type, and acute ascending paralysis of type of Landry, (79) 1697
  celluloid splints in acute cases of, (37) 709
  epidemiology of Buffalo outbreak, 424—ab
  human, comparison of lesions of nervous system in distemper of dog with, (19) 1985
  transmission of, by bite of lyperosia irritans, (24) 803
POLISH physicians meet, 589
POLYADENOMA, case of, (123) 63
POLYARTHRITIS in children, chronic, (59) 2161
POLYCYTHEMIA, experimental, (61) 977
POLYDACTYLISM, family history of, (19) 1329
POLYNEURITIS, diphtheria followed by, cured by tonsillectomy, (97) 69
  diphtheria followed by, with pains, ataxia and paralysis, (60) 1238
  uremic, (247) 363
POLYPUS, intestinal, with 3 intussusceptions, (108) 510
  larynx, recurring, with *tetany*, (23) 273
  nasopharynx, (60) 356
  nose, 1501—ab
  urethra, male, clinical manifestations of, (40) 1421
  uterus, cervix, complicated by pregnancy, (94) 510
POLYSACCHARIDES, soluble, of lower fungi, (33) 605, (64) 1697
POLYSEROSITIS, hydrocele as first symptom of, (152) 206
POLYVALENT antigen for serodiagnosis of streptococcus viridans infection, (55) 429
PORTAL vein and hepatic artery, outflow of blood from liver as affected by variations in, (24) 888
PORTO RICO, public health in, 1124
POST CARDS, sanitary, 2242
POSTGRADUATE course for volunteer army surgeons, (85) 1512
  education, 1969—C
  study, foreign realities vs. American remedies, 2150—C
  study in Vienna, (67) 1508, (106) 1507
  work, American versus European, 788—E
POST MORTEM: See Necropsy
POSTOPERATIVE CARE: See Operation
POSTURE and intestinal derangements, relation of, to coxitis, *2199
POTASSIUM, action of sodium iodids, iodin ion and, on heart and blood-vessels, (36) 1325
  compounds cut off by war, 1034—E
  content of cerebrospinal fluid in various diseases, (25) 1695
  iodid test for carbon monoxid in blood, (129) 1890
  iodid test for differentiation of cancer and treatment, (84) 1145
  permanganate for snake-bite, (4) 1984
  permangante poisoning, fatal, (57) 1511
  permanganate reaction in pathologic cerebrospinal fluid, (119) 205
  sulphate, combination of local anesthetics with, enhance action of some, reduces it with others, (39) 976
  supply, 1043
  tellurite as indicator of bacterial life, (29) 1788
POTATO, sweet, wild, poisoning from supposed, 1315
POTTERS, tuberculosis among, 347—ab, (13) 1420
POTT'S disease: See also Spine
POTT'S disease, bone transplantation in, (137) 512
  disease in cervical region, (3) 1323
  disease with acute influenzal thyroiditis in girl of thirteen, (38) 514
  paralysis, Albee's operation in, (68) 509
POVERTY and disease, *1720
  and tuberculosis, *1720

PRACTICE OF MEDICINE: See Medicine, Practice of
PREGNANCY, adrenal insufficiency during, (44) 201
  albuminuria in, treatment of, *157
  amputation of uterus to arrest, and prevent conception in lung tuberculosis, (37) 1510
  appendicitis in, (201) 362
  artificial pneumothorax and, *1110
  artificial termination of, and sterilization at one operation, (93) 1704
  bacillus coli communis infection complicating labor and, medical and surgical treatment, (7) 198
  cholelithiasis and, 4 cases, (73) 1790
  cholesterin metabolism of, experimental study of physiology and pathology in, (79) 435
  chorea during, (116) 519
  contracted pelvis in labor and, treatment, (5, 6) 1508
  corpus luteum, influence of, on breast and uterine mucosa during early stages of, 32—E
  dermatosis, Ringer's solution in, (181) 286
  dermographism of, (27) 975
  diabetes and, (87) 1798
  diagnosis of, (77) 429
  early sign of, (106) 615
  extra-uterine, (68) 429, (66) 509, (95) 608
  extra-uterine, abdominal, (24) 2310
  extra-uterine, advanced and full-term, (39) 2263
  extra-uterine, advanced, 3 cases of, (44) 279
  extra-uterine, advanced, with tuberculous peritonitis, (16) 64
  extra-uterine, final results of operations on, (139) 276
  extra-uterine, in stump following ovariotomy, (19) 1884
  extra-uterine, lithopedion in, (99) 1507
  extra-uterine, prolonged retention of placenta after full term, (134) 616
  extra-uterine, ruptured, complicated by splenomedullary leukemia, (5) 1609
  extra-uterine, ruptured during early months, treatment of, (74) 517
  extra-uterine, ruptured, early diagnosis of, (69) 890
  extra-uterine, ruptured, 5 to 6 months, laparotomy, (27) 1700
  extra-uterine, ruptured in early months, (40) 2263
  extra-uterine, ruptured, 100 cases, recovery, (64) 1060
  extra-uterine, ruptured tubal, postmortem specimen of, (18) 1884
  extra-uterine, treatment of early, (54) 1055
  extra-uterine, tubal, anatomic study of early, (4) 1694
  extra-uterine, with living child at term, (84) 1513
  extra-uterine, with polypoid chondrofibroma of fallopian tube, (12) 888
  extra-uterine, with prolonged retention of fetus, (19) 1508
  extra-uterine, with rupture of large intestine, (45) 1055
  fat-lipoid content of blood increased in, 1299—E
  fecundation and conception, (70) 1326
  fibroids of uterus complicating, hysterectomy for, (83) 607
  hydramnios, acute, occurring with uniovular twins, (18) 64
  hypophysis in, (40) 2312
  imagined, (63) 357
  intra-abdominal hemorrhage complicating normal, (45) 2072
  kidney trouble during, eye symptoms with, (191) 362
  Korsakow's psychosis in, (33) 1324
  management of normal labor and, (43) 1981
  metabolism changes in, (170) 285
  morbus cordis complicating, cesarean section under spinal anesthesia for, (15) 64
  morbus cordis complicating, 2 cases treated by hysterotomy under spinal anesthesia, (14) 974
  myoma and, (40) 1238
  myomectomy followed by, (28) 514
  neuritis, (149) 206
  ninhydrin reaction in urine and urine dialysates in, (16) 887
PREGNANCY, nutrition in development and, 244—E
  pyelitis in, (99) 2169
  reaction, hemolysis of streptococci, (180) 286
  removal of both breasts with subsequent, and absence of labor pains, (7) 1694
  Roentgen rays and, (48) 515
  serodiagnosis, Abderhalden, (131) 63, (163) 206, (52) 352, (186) 362, (241) 363, (13) 426, (130) 512, (72) 978, (41) 1142, *1172, (28) 1231, 1500—ab, (57) 1982
  serodiagnosis, Abderhalden, limitations of, *370
  serodiagnosis, Abderhalden, negative excludes, (53) 1885
  serodiagnosis, Abderhalden's, value of, (89) 353, *371
  serodiagnosis of cancer and, (5) 708, (3) 973
  serodiagnosis, proteolytic, (65) 67
  sero-enzymes in disease and, (114) 1983
  seroreaction, decidua responsible for, (67) 1144
  serum turbid and opalescent in new-born infant and in, (144) 284
  syphilis as complication of, (96) 608
  termination before third month, when justifiable, (5) 349
  tests, conjunctival and skin, no practical value to, (83) 517
  tetanoid symptoms in, (165) 285
  toxemia of, duodenal enema in, (91) 429
  toxemia of, eye manifestations of, *25
  toxemia of, total non-protein nitrogen of blood in, (9) 1695
  toxemia of, treatment of, with placental serum, *158
  toxicity of urine, serum and colostrum in labor, puerperium and, not proportional to clinical picture in eclampsia, (64) 812
  tuberculosis and, (114) 814, (25) 1329
  tyrosin crystals in urine of normal, (114) 1327
  uncinariasis and, dangers, (112) 2075
  urine, bacterial content in, (169) 285
  uterus bicornis bicollis, 6 months, right horn, pyometra left horn, (17) 64
  vaginal douches, medicated, during parturition and, (53) 1331
  vomiting, pernicious, treatment of, (76) 708
  vomiting, uncontrollable, (185) 362
  unusual case of, (68) 275
PRESBYOPIA, mechanism of development of cataract and, (55) 1470
PRESCRIBING and sale of morphin, unlawful, 2157—Ml
  in England, war and economics of, 1484—E
PRESCRIPTION, (47) 1981
  criticism of, 1971
PRESENTATION, breech, at 8½ months complicated by fibroids, confirmed by roentgenograms, (122) 63
PRESSURE, intra-abdominal, and carotid blood-flow, (7) 2258
  intracranial, (38) 421
PREVENTION greater than cure, 1112—T, 1204—T, 1296—T, 1391—T, 1477—T, 1577—T, 1670—T, 1761—T, 1854—T, 1951—T, 2042—T, 2131—T, 2227—T, 2290—T
PRIAPISM, (6) 2309
PRINTER'S ink bill, plea for adoption of, 409—E
PRISONERS, county not liable for cost of operation on, 507—Ml
  German, treatment of, 2035
  medical, exchange of, 2053
PRISONS of Germany and Denmark, food in, (120) 2082
  reform in, (102) 510
PRIVILEGE covers instructions and their observance, 345—Ml
  extends to physician invited to assist in diagnosing case, 268—Ml
  patient who testifies waives, 1876—Ml
  waivers of, 702—Ml
  waivers of, what constitute communications to physicians and, 1785—Ml
PRIVILEGED communications, construction of statute with reference to, 425—Ml
PRIZE, dental, foundation of, 1684
  essay, Dr. Knopf's, as aid to tuberculosis campaign, 2143
  for army sanitation, 1867
  given for relief work, 1775
  Nobel, 1967
  Nobel, awarding of, postponed, 2143
  offered by Prussian Academy of Sciences, 593
  Riberi, 1215
  Robert Koch Foundation for Tuberculosis Campaign offers, 255
  Santoro, to discoverer of artificial pneumothorax, 1865
PROCREATION and nephritis, (108) 713
  under influence of alcohol, (120) 616
PROCTOCLYSIS and salt infusion, (44) 1612
PROFESSION: See also Medicine, Practice; Physician
PROFESSION, medical, and accident insurance, (80) 806
  medical, and eradication of disease, 1926—ab
  medical, and health insurance, 1687—C
  medical, and medical education, 1692—ab
  medical, and militia, (40) 1231
  medical, and national defense, (55) 1605
  medical, and public, 1877—ab, (62) 2073, (96) 2163
  medical, and recent legislation, (10) 513
  medical, and workmen's compensation acts in U. S., (58) 969, (171) 973
  medical, effect of war on, 1867, 2241
  medical, in Greenland, (102) 1990
  medical, of Alberta and defense of country, (54) 1605
  medical, organization in, (63) 2161
  medical, patriotic devotion of, 1043
  medical, pulpit on, 1923—ab
  medical, reminiscences and plea for unity in, (87) 892
  medical, work of, (47) 806
PROGERIA in girl of 8 years, (17) 427
PROGNOSIS, (20) 610
PROPAGANDA for reform in Germany, (152) 360, (206) 362, 1042
PROPRIETARY Association of America and G. P. Engelhard, 408—E
  drug stores flooded with, (158) 284
  foreign, and their German equivalents, (106) 1705
  prescribing in England, 1484—P
  therapeutics, 338—P
  trademarks and protected names for, (76) 613
PROSTATE, atrophy, (72) 812
  atrophy, with stenosis, (92) 203
  cancer, *1013, (22) 1980
  cancer in youth of 17, (32) 427
  disease, median bar obstruction in, (104) 1607
  enlargement, operative treatment of (119) 359
  enlargement, roentgenography of, by air inflation of bladder, (88) 1056
  hemorrhoid cause of symptoms in urethra and, (104) 62
  hypertrophy, (34) 1880
  tuberculosis of, (109) 359
PROSTATECTOMY, 1600—ab, (123) 2075
  advisability of, factors determining, 1785—ab,
  functional kidney tests in reduction of mortality, *1909
  functional test of kidneys for, prognostic value of, (48) 1055
  local anesthesia in, (83) 281
  method of choice in, (151) 1699
  mortality after, conditions influencing, (46) 2161
  perineal, board for genito-urinary, rectum surgery and, *1476
  perineal, for cancer, modified technic for, (41) 811
  suprapubic, (43) 1325, *2273
  suprapubic, changes in normal bladder and sphincters after, (10[illegible]) 2169
  suprapubic, drainage in, *1667
  suprapubic, hemorrhage after, method of diminishing, *2217
  suprapubic, low table position and other aids for performing, (54) 1137
  suprapubic, pneumatic pressure bag for controlling hemorrhage following, (139) 1883
PROSTATECTOMY, toxic action of enlarged prostate relieved by, (34) 611
  transvesical, (94) 1514, (95) 2081
PROSTATITIS, chronic, following urethral Neisserian infection, (96) 1697
PROSTITUTION, essential preventatives of, (7) 894
  sanitary control, should it be abandoned, (85) 61
PROTEIDS and fats in infant feeding, management of, (130) 198
  constitution of, (90) 353
PROTEIN and calcium fed pregnant swine, effect of, on size, vigor, bone, coat and condition of offspring, (10) 272
  Bence-Jones, in urine, origin of, (45) 605, 1481—E
  contents of blood serum of rabbits, effect of chloroform and ether anesthesia on, (93) 970
  degradation products of, fate in organism, (53) 1231
  digestion, parenteral, *365
  intake, influence of, on formation of uric acid, (80) 970
  metabolism, intermediary, *823
  of blood of limulus polyphemus, (66) 1232
  of cereal grains and milk, value of, for growth in pig, (12) 2259
  of maize kernel, nutritive properties of, (58) 60
  poison of tonsil, (92) 2162
  sensitization and tuberculosis, (43) 352
  shortage in relation to acidosis in omnivora and herbivora, (17) 2259
PROTEOLYSIS and bacteriolysis, (70) 1606
PROTHROMBIN, (22) 2070
PROTOZOA, effect of gentian violet on tissues growing in vitro and, (20) 2259
PRURITUS ani, (82) 61, (35) 2076
PRUSSIAN Academy of Sciences offers prize, 593
  parliament, hygiene in, 496
PSEUDOARTHROSIS from interposing sheet silk and bayberry wax, (5) *272
  in children, (108) 282
PSEUDOHERMAPHRODITISM and hermaphroditism, (15) 1700
PSEUDOLEUKEMIA: See also Hodgkin's Disease
PSEUDOLEUKEMIA, treating threatening conditions in acute leukemia, hemorrhagic diatheses and, (87) 1241
PSEUDOMYXOMA in peritoneum of appendicitic origin, (101) 1514
PSEUDOSTRUMA of ovary, (4) 1230
PSOAS parvus contraction, case of, (51) 197, (125) 892
PSORIASIS, (23) 1329
  autogenous serotherapy in, *2190
  nature and treatment of, (23) 2311
  research studies in, summary of, *729
PSYCHOANALYSIS, (34) 432, (19) 803
  and hystero-epilepsy with recovery and comments on, (119) 63
  and psychoses, *1891
  contrast in, 3 cases, (16) 803
  criticism of, (1) 1878, (75) 2161
  dream interpretation and, (17) 803
  personal results in, and future of psychotherapy, (32) 59
  present status of, (31) 59
  references to, 1130
PSYCHASTHENIA, analysis of case of, (54) 2161
PSYCHIATRIST and juvenile court, (189) 973
PSYCHIATRY and war, (74) 1703
  conflicting tendencies in, (99) 1146
  evolution of, (115) 615
  general hospitals and, (25) 1793
  gynecology and, (44) 2263
  in field, (88) 1704
  internal medicine and, (1) 703, (32) 1324, (38) 1880
  modern, and therapeutics, (2) 1230
  teaching of, in American medical schools, *1643, *1644
PSYCHIC changes after resuscitation after hanging, (76) 2168
  complex in congenital deformity, (105) 1983
  factor in insomnia, (34) 2076
  research, (105) 203
  shock following operations, (41) 1506

PSYCHOLOGY, Adolph Meyer's estimate of, (7) 1878
PSYCHONEUROSES and chronic infections, 1977—ab
  genetic factors in 100 cases, *1897
  physiotherapy and psychotherapy, value of association in, (34) 65
  treatment, (54) 1325
  with low blood-pressure, (52) 66
PSYCHOSES: See also Insanity; Neurasthenia; Neuroses
PSYCHOSES, adolescence, (5) 58
  alcoholic, and psychopathic drinkers, (53) 1790
  among negroes, (6) 1878, (55) 1981
  dementing, is there increase in, (5) 703
  disease of glands of internal secretion and, (11) 1879
  in field, (70) 1988
  in Malta fever, (154) 206
  in pernicious anemia, *936
  intoxication, with cirrhosis of liver, (9) 703
  juvenile, *1283
  Korsakow's, in pregnancy, (33) 1324
  pellagra and, (58) 1880
  presenile, (90) 1881
  psychanalysis and, *1891
  relation of, to epilepsy, hypophysis disturbance and personality, (73) 806
  similar and dissimilar, in relatives, (8) *704*
  treatment of, spurious and genuine, (49) 1880
  weight of liver and brain in, (56) *606*
PSYCHOTHERAPY and physiotherapy, in psychoneuroses, value of association, (34) 65
  for children, (197) 362
  future of, and personal results in psycho-analysis, (32) 59
  in reeducation of attentive control, (64) 1880
  in urology, (35) 1231
  present status of, (150) 284
  rational, (134) 199
PTERYGIUM, epithelioma following, (89) 807
PTOMAINES, non-interference of, with tests for morphin, (70) 61
PTOSIS: See also Enteroptosis; Gastro-Enteroptosis; Gastroptosis; Splanchnoptosis
PTYALISM, danger signal of renivascular disease, (32) 2160
PUBLIC HEALTH: See Health, Public
PUBLICATIONS, medical, standardization of size of, 177
  of case histories and professional secrecy, 592
PUERPERAL infection, (69) 806, 1693—ab
  infection, diphtheria antitoxin in, (163) 438
  infection, fixation abscess in, (175) 285
  infection, intravenous colloidal metal injections in, (52) 811
  infection, sensitized bacterial vaccines, prophylactic use in, (1) 199
  infection, treatment of, (23) 509, (70) 806, (61) 969, (24) 1135
  infection, turpentine in, (189) 362
  infection with enterococcus, case of, (22) 278
  phlebitis, calcareous shell in external iliac vein 20 years after, (6) 349
  thrombophlebitis, (92) 608
  thrombophlebitis, treatment of, 1418—ab
PUERPERIUM, malaria complicating, *2215
  management of, (80) 275, (91) 353
  perineal abscess complicating, pathogenesis and differential diagnosis, (14) 887
  toxicity of urine, serum and colostrum in pregnancy, labor and, not proportional to clinical picture in eclampsia, (64) 812
  tuberculous peritonitis in, (109) 1354
PULSATION in throat, (181) 361
PULSE, alternating, varieties of, (49) 896
  artificial jugular, (116) 2082
  flow in brachial artery, (24) 2071
  in aorta, failure of attempts to record, (37) 1141
  inspiratory diminution of, (41) 1700
  intermittent, (29) 894
  irregular, and tachysystoly of auricle, (62) 1886, (76) 2079
  irregular, permanently, (84) 435
PULSE, measuring force of, (114) 282, (126) 360
  oxygen, and systolic discharge, (25) 888
  paradoxical, (92) 713
  rate and adrenals, *316
  rate and body temperature in man after muscular exercise, (13) 1503
  rate, voluntary acceleration of, 2044—E
  rhythms, regular and irregular, intravenous use of strophanthin in, (8) 1323
  venous, and tricuspid insufficiency, (116) 282
  wave with diseases of aorta, (82) 812
PULSIONS diverticulum in esophagus, (84) 614
PUPIL, clear, after cataract extraction, (24) 1700
  hemiopic reaction obtained with new instrument, *846
  hemiopic reaction of, as aid in diagnosis of brain tumor, (100) 980
PUPILLOMETER for determining hemiopic pupillary reaction, *846
PURGEN, severe reaction with albuminuria to dose of, (203) 440
PURIN bases, formation of hexone and, in autolysis of glomerella, (68) 1697
  catabolites, excretion of, in urine of marsupials, rodents and carnivora, (68) 969
  catabolites, excretion of, in urine of ungulates, (84) 970
  enzymes in lung in pneumonia, (85) 435
  enzymes of opossum, (70) 1697
  enzymes of orang-utan and chimpanzee, (32) 605
  intestinal bacteria and, 871—E
  metabolism, biochemistry of, (68) 969, (84) 970
  metabolism, influence of secretions of ductless glands on, (89) 2169
  metabolism, new aspects of, 1397—E
  metabolism of endogenous and exogenous, in monkey, (67) 61
  researches on, (60) 1232
PURKINJE cells in cerebellum, method of counting, 10 clinical cases, (24) 2260
PURPURA, bacillus mucosus in blood with, (35) 805
  experimental production of, in animals, (39) 201
  hemorrhagica, (109) 429, (58) 1055
  hemorrhagica, horse serum in, (110) 1608
  hemorrhagica, severe, subcutaneous injections of pure blood in, (92) 1697
  rheumatica with genito-urinary lesions, (97) 2163
  septicemic, case of, (43) 279
PUTREFACTION, gases of, hygienic and epidemiologic importance of, (127) 1706
  in intestines, (59) 1987
PYELITIS, chronic, (112) 429, (83) 1513
  chronic, treatment of, *2211
  in children, (107) 1426
  in pregnancy, (99) 2169
PYELOCYSTITIS in children, (149) 284, (121) 359
PYELOGRAPHY, collargol in, *1387
  in diagnosis of traumatic injury to kidney, (10) 2309
  indications and limitations, (47) 515
  kidney lesions after, (157) 1609
  present status of, *523
  technic for, (157) 438, (58) 1144
  untoward results of, (154) 1609
PYELONEPHRITIS, clinical study of, (120) 520
PYGOPAGUS, living, delivery of, (30) 1059
PYLORECTOMY for ulcer, (17) 508
PYLOROSPASM, (88) 1507
  in infants and habitual vomiting, (139) 283
  in infants, treatment, (83) 1063
PYLORUS, advantages of closing up, with every gastro-enterostomy, 14 cases, (110) 436
  cinematography of duodenum and antrum of, (2) 1883
  exclusion of, (41) 1330
  exclusion of, for stomach and duodenum ulcer (42) 612, (46) 976, *1525
  exclusion of, unilateral, report of twenty-seven, *530
PYLORUS in etiology and treatment of stomach ulcer, (51) 1325
  obstruction in infants, (30) 1884
  obstruction of duodenum and, (110) 892
  permeable, gastro-enterostomy with, (27) 351, (24) 1059
  residium in stomach later than 6 hours with gastric ulcer not remote from, (68) 812
  stenosis, congenital, (82) 806, (42) 1421
  stenosis, gastralgic variety of, 177
  stenosis, hypertrophic, in infants, 5 cases, (50) 1986
  stenosis, hypertrophic, in man of 58, (50) 433
  stenosis, painful form of, (42) 356
  stenosis, roentgenoscopy of incomplete forms of, (15) 803
  stenosis, tuberculous, (86) 614
  stenosis with hematemesis in 3 weeks' infant, posterior gastro-enterostomy for, (25) 809
  tied off with 2 cm. wide strip of fascia lata, (136) 437
  tying off, (70) 711
PYOGENIC infections of upper urinary tract, (8) 1135
PYOMETRA *in left horn of uterus* bicornis, (17) 64
PYONEPHROSIS, (109) 510
PYOPNEUMOTHORAX, ascaris in, (31) 810
PYORRHEA ALVEOLARIS, (86) 607
  and auto-intoxication, (15) 278
  emetin treatment, *1746, (100) 1982
  succinimid of mercury in, (129) 1983
  sulphuric acid in furunculosis and, (88) 275
PYOSALPINX, appendicitis mistaken for, (54) 890
PYREXIA of obscure origin, (31) 432
PYURIA in infants, (88) 510

Q

QUACK as medicolegal expert, (205) 362
  cancer, how eliminate, (178) 973
  G. H. Brinkler, fraud order issued against, 1219—P
  horoscope of, 1583—E
  in war, 1310
  prosecution of, and American Medical Association, 171—E
  W. J. *Crozier,* 418—P
QUACKERY, fighting, in Iowa, 338—P
  superstition and robbery, ancient and modern, in treatment of disease, (14) 1054
QUADRICEPS muscle, paralysis of, (32) 1060
QUADRUPLETS from 4 ova with discussion of quadruplet births in general, (76) 517
QUARANTINE, Guatemala raises, 1309
  national, (105) 892
  national, committee document from United States Senate printed for use of committee on public health and, sent to newspapers, 689—E
  poliomyelitis patient entitled to recover for, 1132—Ml
  regulations in United States, (53) 1143
QUININ and urea hydrochlorid as local anesthetic, (98) 1327
  hydrobromid of, in whooping-cough, 1031
  in hydrophobia, (38) 804
  in hydrophobia, in rabbits, (39) 706
  in malaria, *1931, (121) 1983, 2158—ab
  in malaria, intramuscular injections superior to administration by mouth, (6) 1053
  in syphilis, (143) 437
  injections, limitation of after-pain of, (33) 1884

R

RABIES: See Hydrophobia
RACE degeneracy and public health, (4) 1420
  problem of alien, medical aspects of, (125) 431
  suicide, plea against, (128) 1139
RACHICENTESIS, (140) 437
  and examination of cerebrospinal fluid in meningitis in children, (25) 513
  in chorea, (86) 2080
  in syphilis, *550
RACHICENTESIS, *spinal tumor symptoms exaggerated after,* (62) 2078
  streptothrix in fluid obtained by, (117) 359
RACHITIS, action of inorganic and organic calcium-phosphorus *preparations on metabolism in,* (55) 1987
  anemia in twins with, (33) 514
  congenital, (110) 1243
  curvature of long bones due to, operative treatment, (67) 1240
  etiology and prevention of, (39) 2076
  histologic examination of musculature in children with, (54) 1987
  pathology and prophylaxis of, (6) 507
  serum of patients with tetany and, does not digest gland tissue, (224) 363
  tardy, case of, (67) 1060
  thymus and, (59) 613
RADAM'S Microbe Killer, 1408—P
RADIANT energy, depth of biologic action of, (56) 1331
  energy, effect of, *on lens and humors of eye,* (3) 2258
RADIATIONS, action of, on cells and fluids, (10) 1883
  solutions in internal medicine, natural and artificially prepared, (54) 2261
RADIO Medical Electric Doctors, 1778—P
RADIO-ACTIVE substances, distribution and elimination of, (65) 1238
  substances in cancer of uterus, (3) 349
  substances, properties and uses of, (42) 2263
RADIO-ACTIVITY of Saratoga waters, 788—E, 795—P
RADIOGRAPHY: See Roentgenography
RADIOMETRY, (4) 2075
RADIOTHERAPY, (30) 1237
  and production of protective ferments, (107) 1705
  anion therapy and, (80) 1063
  appendix, technic for, (52) 1238
  cancer, (124) 205, (123) 616, (91) 1233, (84) 1241, (65) 1331
  cancer, histology of, after, (51) 1239
  cancer of throat and esophagus, technic for, (81) 1060
  cancer, or surgical treatment, (125) 205, (56) 1506
  chorio-epithelioma, (63) 1144.
  deep, continuous röntgenization for, (134) 283
  in internal medicine, (153) 284
  lupus and bone and joint tuberculosis, (118) 2082
  operation plus, (75) 1331
  ovary under, changes in, (130) 71
  physical and biologic bases of, (68) 1240
  radium and Roentgen rays in, *743
  tumors and tissue changes after, (101) 203
RADIUM, (4) 2261
  accidents to, 177
  action of Roentgen rays and, on *spleen, (147) 360*
  activators, price of, 1780
  and Roentgen rays in radiotherapy, *743
  and roentgenotherapy, 1321—ab
  atophan and, in gout and arthritis, *945
  beta rays, (105) 2163
  bromide, 2289
  carbonate, 2289
  comparison of uses of Roentgen ray and, with lantern demonstrations, (57) 2261
  curative effect of, *817
  emanation, 2 cases of treatment by, *(109)* 970
  in cancer, *(77)* 61, *(125)* 520, (121) 714, 787—E, (44) 1238, (100) 1507, (16) 1879
  in cancer as supplement to operative treatment, (54) 896
  in cancer at Huntington Hospital, (44) 2073
  in cancer, comparative value of roentgenotherapy and, (114) 1334, (81) 1432, (4) 1883
  in cancer, intra-uterine application of, (90) 979
  in cancer of bladder, *1852
  in cancer of *larynx,* (32) 273
  in cancer of uterus, (160) 206, (158) 438, 1786—ab

RADIUM in cancer of vagina, (66) 606
in cancer, superficial, 11 years' experience of, (6) 2261
in ear diseases, (102) 275, (106) 970
in skin diseases, *737, *741, (59) 890, (100) 1507, (56) 2261
in surgery, (56) 806, (154) 972, (53) 2261
in uterus hemorrhage and fibroid tumors, *622
instrument for direct application of, in tumors of bladder, (104) 429
intraperitoneal treatment of, (131) 360
intravenous injection of element of, (55) 2261
irradiated cancer, immunity by, (32) 279
present status of, (45) 1981
price of, 402—ab
therapy, (83) 353
therapy by emanation needles, (4) 431
therapy, physical basis of, (29) 2311
tubes, imbedded in cancer, (106) 2163
RADIUS, congenital deficiency of, and homologous condition in leg, (33) 200
fracture of lower end of, in children, (92) 282
shaft of, as pin cushion, (52) 2160
RAILWAY accident cases, neurologic and psychiatric aspects of, (113) 1698
accidents, loss of life due to, 872 —E
cleansing and disinfection of coaches of, 602—ab
employees, glycosuria and diabetes in, (118) 2170
employees, injured, emergency requirements for, 703—Ml
sanitary regulation of, (150) 72
sanitation, phases of, *2032
surgeons, meetings of, 331, 1041, 1123, 1865
surgeons, statements made to and by, 268—Ml
tunnels, air of, 582—E
water-supply in Minnesota, 408——E
RASH: See Eruption
RAT bite disease in Italy, (245) 363
development of new-born white, when separated from mother and artificially fed, (90) 813
RATIONS, British field service, 506 —ab
of war prisoners in England, 1124
RATTLESNAKE Venom: See Crotalin
RAYNAUD'S disease, and paroxysmal hemoglobinuria, relation of, (116) 63
RAYS: See also Roentgen Rays; Ultraviolet Rays
RAYS, gamma, artificially produced, (80) 1331
harder, protection necessary when using, 1228—ab
REACTION: See also Test
REACTION, albumin, of sputum in lung tuberculosis, (4) 1699, (63) 1988
atypical, to alcohol and medico-legal importance, (134) 2170
caloric vestibular, loss of, with operative findings, (105) 1698
Cammidge, in urine, 1581—E, 2063 —C
coagulo, in syphilis, (75) 1241
colloidal gold, in cerebrospinal fluid, (120) 205, (7) 426, (80) 1881, (100) 2081, 2138—E
diazo, and urobilinuria, in typhus and diplobacillus exanthematicus, (45) 1238
diazo and urochromogen in prognosis of tuberculosis, comparison of, *1294
diazo in lung tuberculosis, (267) 364
glycyl-tryptophan, in meningitis, (52) 1423
Landau's, in diagnosis of syphilis, (49) 1986
Lange gold-sol, in general paralysis, (81) 1881
Loewi's, and urinary disatase test, in pancreatic lesions, (7) 199
luetin, (42) 895, *1750
luetin, in inherited syphilis, (106) 1243
luetin, in syphilis, (135) 205, (21) 803, (119) 971, (47) 1613, *1750
luetin, in syphilis in children, inconveniences of, (37) 356
REACTION, luetin, less reliable than Wassermann reaction in inherited syphilis, (46) 896
luetin, positive, in diagnosis of surgical affections, (47) 2166
meiostagmin, (98) 1705
misleading, obtained with precipitating antisera and how to avoid them, (17) 709
ninhydrin, application of, to urines and urine dialysates in pregnancy, (16) 887
of blood, changes in, effects which follow, (29) 200, (36) 201
of bone marrow in tuberculous anemia, (20) 1141
Pirquet and sucutaneous tuberculin, in tuberculosis diagnosis in adult, comparative value of, 349 —ab
Pirquet skin tuberculin, clinical value of, (94) 1989
potassium permanganate, in pathologic cerebrospinal fluid, (119) 205
pupillary hemiopic, as aid in diagnosis of brain tumor, (100) 980
pupillary hemiopic, obtained with new instrument, *846
Russo and Fuchs-Lontz methylene blue, in urine, not specific for any disease, (108) 615
Schick, (14) 704, 2134—E
skin, anaphylactic, in hay-fever from pollen, (24) 1880
skin, in differentiation of small-pox and chicken-pox, (69) 1702
skin, to tuberculin tests, curves to record, (93) 813
substitution, (98) 1607
tuberculin, in focus in obscure hip-joint disease, diagnostic importance of, (68) 517
tuberculin, intracutaneous, blood-picture with, (46) 1330
tuberculin, Pirquet, and salve, for tuberculosis in children, (123) 1244
tuberculin skin, in children, (91) 358
tuberculin, subjective and objective symptoms of favorable and unfavorable, (65) 1790
tuberculous foci, in skin to tuberculin, (226) 363
urine, hexamethylenamin, (110) 70
urochromogen, (139) 72
urochromogen and diazo, in lung tuberculosis, (267) 364, *1294
urochromogen, influence of bile pigments and heat on, (156) 206
Wassermann, (10) 426, (161) 438, (7) 807, (54) 1697, (11) 1699
Wassermann, among acute and chronic insane, (62) 1326
Wassermann and luetin, in 744 individuals, *1750
Wassermann, and serum cholesterol, (44) 706
Wassermann, antigens in, (46) 509
Wassermann, cholesterin antigens in, and quantitative testing of syphilitic sera, (13) 1323
Wassermann, cholesterinized and non-cholesterinized artificial antigens in comparison of, *313
Wassermann, cobra and globulin, comparative, in syphilis, (79) 1326
Wassermann, conglutination by Karvonen's technic as substitute for, (81) 1797
Wassermann, for guiding treatment of syphilis, (96) 1514
Wassermann, for syphilis, in Harvard neuropathologic testing laboratory, (19) 195
Wassermann, Hecht-Weinberg reaction control over, *240, 263
Wassermann, in lead-poisoning, 184
Wassermann, in malaria, (41) 200
Wassermann, in new-born infant, (145) 360
Wassermann, in public health work, practical application of, (97) 510
Wassermann in thrombo-angeitis, long negative, now positive, (70) 1982
Wassermann, interpretation of, (37) 1421
Wassermann, loss in specificity as distinctness increased, (60) 613
Wassermann, luetin reaction less reliable than, in inherited syphilis, (46) 896
Wassermann, necessity of, in controlling treatment of syphilis, (138) 893
REACTION, Wassermann, results of salvarsan in syphilis judged by, using cholesterin fortified antigen, (62) 1137
Wassermann, sources of error in technic of, (93) 198, (60) 2073
Wassermann, specificity of cholesterin with syphilitic serums and cholesterin-reinforced heart antigen in, (28) 1695
Wassermann, syphilis of nervous system in light of treatment with neosalvarsan and, (1) 2164
Wassermann, technic for, (113) 615
Wassermann, technic for mixing materials in, by drop method, (84) 1881
Wassermann, unreliability of, using unheated serum, (98) 1057
Widal, among healthy adult Filipinos, (139) 1698
Widal, in typhoid and, vaccine therapy, (47) 1137
READING, hygiene of, and near vision, (4) 1058
REBIPELAGAR in water and milk examination, (145) 1699
RECIPROCITY, interstate, national standard for, 951—E
von RECKLINGHAUSEN'S disease *1358
RECLUS, Paul, death of, 592
RECRUITS, examination of, (9) 1427
RECTOCELE and prolapse of uterus, transposition of uterus and bladder for cure of, (62) 969
RECTOCOLITIS, hemorrhagic, with tendency to erosions, treatment of, (26) 1059
RECTOVAGINAL fistula, *238
septum, adenomyoma of, *385
RECTUM anesthesia, local, in surgery of, (144) 1328
anesthesia, oil-ether, (77) 607, (45) 1325, (92) 1425
cancer, (20) 1980
cancer, early diagnosis, (34) 1231
cancer of recto-sigmoid junction and, early clinical diagnosis of, (108) 1426
cancer, radical operation for, (14) 2075
compression, by fibrous masses, relics of old uterine or tubal processes, (33) 65
diseases, office practice in, (51) 1231
displacement of uterus, bladder and, end-results after 109 operations, (9) 2070
examination in diseases other than those of rectum, value of, (40) 1885
malformations, congenital, of anus and, (133) 971
mobilization of, in repair of complete rupture of perineum, (28) 976
plum-stone in, inability to urinate on account of pain caused by, 403
prolapse, alcohol injection for, (96) 1242
puncture of, by axle of baby carriage, (50) 2160
repair of accidental injuries to, (127) 893
surgery, perineal board for perineal prostatectomies, genito-urinary and, *1476
tumors of anus and, of benign or doubtful character, (23) 195
tumors, villous, of, 2 cases, (45) 976
ureters grafted into, in ectopia vesica, (4) 199
vagina formed out of, (177) 285
RECTUS muscle, external, paralysis of, due to abscess in apex of petrous pyramid, death from basal meningitis, (5) 974
muscle, spontaneous rolling up of eye-ball on attempt at adduction with congenital paralysis of, (261) 364
RECURRENT FEVER: See Relapsing Fever
RED nucleus, cortical connections of, (1) 1694
RED CROSS, American, at Breslau, 1866
American, expedition in Berlin, 1682
American, in European war, 589, 1681
American, offers services, 792
American, requests gifts of clothing, 2144
American, units located, 2054
appeals for funds, 1405
Austrian, aid for, 2240
British, work of, 1310, 1965, 2054
RED CROSS, emigrant station turned over to, 1042
expedition sails, 957, 1042
French, appeal from, 2054
French, resources of, 1043
funds to Servia, 1042
German, 2053, 2056
hospital opened, 1124
hospital trains, 1682, 1965
in Servia, 2053
insignia, abuse of, 1591
Japanese, work of, 2053
needs funds, 1308
order of St. John of Jerusalem unites with, 1967
personnel for war, organization of, (83) 1327, 1683
precursors of, (207) 362
seals, 2143
ship, 1216, 1491, 1964
stamp, 1591
surgeons expect call, 1042
surgeons for Russian, 2053
units, disposition of, 1405
units for Servia, 2053
work, American information on, 1216
work changes, 2239
work in France, 1774
work in Munich, American, contribution for, 1309
RED-LIGHT in roentgen work, (74) 1331
in small-pox, (77) 1989
REFLEX, abdominal cutaneous, in acute conditions in abdomen and pelvis, (150) 1608
acoustic, in decerebrate cat, (20) 2070
conditional, (157) 206
inhibitor, lack of, cause of rapid labor with spinal-cord disease, (64) 67
nasal, cases of, (126) 63
under electricity, *1568
REFRACTION, symposium on, (102) 1234
REFRIGERATORS for conveying milk, 1309
REGISTER authority, failure to, and residence, must be alleged, 1600 —Ml
REGISTRATION, medical education and general council of, of United Kingdom, (14) 1141
RELAPSING FEVER, disappearance of typhus, plague and, from civilized countries, (74) 1241
plague, typhus and meningitis during war, 1218
typhus and, (37) 2311
RENNIN, action of, on casein, (16) 2259
REPRODUCTION in domestic fowl, physiology of, (69) 1697
RESEARCH, duty of, in university, 1570—ab
laboratory at Bath, opening of, 43
RESIDENCE and failure to register authority must be alleged, 1600 —Ml
and office, combined, for physician, 423—ab, 1050—ab
RESORTS, winter health, (40) 2076
RESPIRATION, artificial, manual, effect of, (65) 1702
artificial, methods of, 1317—ab
curve, changes under electric tests as aid in diagnosis of latent tetany, (123) 436
defective, in children, (57) 897
epinephrin and, (11) 272
in acidosis, *318
in heart disease, (32) 967, (77) 1790
pituitrin and, (11) 1503
reaction to heart action, (130) 283
RESPIRATORY exchange, control of, by heating and cooling temperature centers, (75) 1425
exchange of infants, (1) 426
infections, auto-immunization in, (63) 1137
movements, pneumograph for recording, (61) 1326
pressure variations in pulmonary artery, nature and causes of, (28) 888
quotient in chronic anemia, (120) 282
sounds, acromial, (34) 967
tract, medicine and surgery of upper, (39) 1055
tract, phlegmons of upper, (118) 2164
tract, right and left, not independent of each other, (45) 356

REST and exercise in lung tuberculosis, 347—ab
cure, place for, 1688
RESUSCITATION after hanging, psychic changes after, (76) 2108
from mine gases, 1117—E
RETINA, detachment of, cured by operation, (148) 361, (16) 1329
gliosarcoma of, with recurrence in maxillary antrum, (115) 276
RETRACTOR and tube pilot for tracheotomy, (136) 1882
new self retaining abdominal, and wound protector, (149) 277
REVACCINATION morally obligatory, (57) 1701
REYMOND, Emile, death of, 1868
RHABDITIN, (70) 1424
RHEUMATISM, (34) 1885
acute, (65) 275
acute articular, heart and renal complications, (110) 1426
acute articular, mental disturbances with, (9) 1878
acute articular, salicylates in, *1107
acute articular, sodium salicylates in, intrarectal administration of, *1004
acute articular, treatment, (103) 62
acute heart-block, case of, (9) 278
acute, treatment of, (98) 2081
articular, chronic, with enlarged glands and spleen, (91) 1704
carditis due to, acute, auricular flutter in, (1) 893
chorea and, (7) 354
heart block in acute carditis due to, (7) 2310
in children, (43) 428, 1502—ab
joints, chronic, enlarged lymph-nodes with, (64) 2264
muscular, massage in diagnosis and treatment, (70) 2079
passive congestion in, 1761—ab
vaccine therapy of chronic, (88) 62
RHINITIS: See also Colds
RHINITIS, atropic, scarlet red treatment of, (58) 197
atrophic, with ozena, etiology and surgical treatment, (129) 1608
pleomorphic branching organism isolated from case of chronic, (31) 1504
RHINOLITH in child of eight, (91) 1607
RHINOLOGY and ophthalmology, contact points of, with general medicine, (41) 196
RHINOPLASTY, corrective, (84) 429
RHINOSPORIDIUM kinealyi, (41) 2076
RHIZOPUS nigricans, toxin of, (8) 508
RHIZOTOMY for gastric crises in tabes, (8) 2075
for relief of pain, (9) 2075
for spastic paralysis, (7) 2075
RHODE ISLAND medical news, 1773
state board April report, 188
RIB, excision of clavicle and first, for malignant tumor, (140) 277
resection of, to immobilize tuberculous lung, (70) 898
RIBERI prize, 1215
RICE diet, ammonia and total nitrogen excretion in urine on different diets especially, (66) 977
milled, and beriberi, (9) 807
unhusked, nerve degeneration in fowls fed on, (123) 430
RICHTER'S strangulated hernia, case of, (30) 2076
RICKETS: See Rachitis
RIGG'S DISEASE: See Pyorrhea, Alveolar
RIGOR, (25) 894
RINDERPEST in Carabao, atypical case, (119) 420
transmission, experiments on, (120) 430
virus, cultivation of, as described by Baldrey, (140) 1698
virus in vitro, cultivation experiments of, (118) 430
RINGER'S solution in pregnancy toxic dermatosis, (181) 286
RINGWORM and favus of nails, *640
scalp and beard, (31) 895
scalp, in adult, (77) 1697
scalp, treatment of, (92) 1791
ROADS, good, prevent disease, 908—ab
ROBINOL, 49—P
ROCHESTER, N. Y., public school courses for adults in health preservation, 1211—E
ROCKEFELLER Institute changes, 332
Institute donation to, 42
ROCKEFELLER sanitary commission, disbanding of, 2143
RODMAN, address of, before Clinical Congress of Surgeons of North America, 591
operation for breast cancer, *1256
W. L., president-elect of A. M. A., 37—E
ROENTGEN, Prof., returns decoration, 1042
ROENTGEN RAYS, action of radium and, on spleen, (147) 360
and action of enzymes, (14) 1503
and bismuth meal method in diagnosis of gastro-intestinal diseases, (16) 894
and operations on stomach, (23) 1605
and radium, comparison of uses of, with lantern demonstrations, (57) 2261
and radium in radiotherapy, *743
apparatus in army, (54) 1701
cancers, (147) 438
danger of, from standpoint of eugenics, (64) 1144
dermatitis, treatment, 1321—ab
Diagnosis: See Roentgenology; Roentgenoscopy
dosage and penetration, possibility of estimating, (22) 350
equipment and work in army at present time, (21) 350
immediate relief from pain under, (36) 1429
in war, (1) 2075
liability, 1875—Ml
localizing simply and immediately, (2) 2075
pregnancy and, (48) 515
proof preparation, plastic, of use in roentgenotherapy, (5) 1883
tubes, old, (40) 1935
work in field, (37) 1612
work, red light in, (74) 1331
RÖNTGENIZATION for deep radiotherapy, continuous, (134) 283
ROENTGENIZED serum, action on blood, (63) 1430
ROENTGENOGRAMS, (20) 350
bladder, (62) 1431
breech presentation at 8½ months complicated by fibroids, confirmed by, (122) 63
in myxedema, transverse striation in, (228) 363
interpretation of, (61) 606
of jaws to determine conditions in teeth, *2074
ROENTGENOGRAPHY, apparatus for compression based on Bucky effect, (2) 1426
and bismuth test-meal, technic of, (40) 1506
and interpretation of negative, (142) 1235
centroscope and episcope, (31) 2076
cranium, technic for, (36) 611
in tuberculosis dispensary, (2) 609
larynx and trachea, *1827
liver, spleen and diaphragm, (108) 204
localization of foreign bodies by, (25) 2311
nephrolithiasis and kidney tuberculosis, differential diagnosis by, *2006
of children, (50) 60
of prostate enlargement by air inflation of bladder, (88) 1056
sphenoidal sinus, direct, (62) 613
thymus enlargement, (87) 1607
ROENTGENOLOGIST present at operations for gastro-intestinal lesions, operative indications for, 1419—ab
protection of, in fluoroscopy, (64) 1796
ROENTGENOLOGY in epilepsy, (26) 1054
in gynecology, future of, (17) 1610
in pediatrics, (17) 1979
instruction in, *651
ROENTGENOSCOPY, (70) 429
and pulmonary physical signs in healthy adults, (33) 2072
appendix, (65) 509, (79) 517, (23) 1141, 1228—ab
cancer of stomach, early and latent, (60) 1424
cancer of stomach, misleading, (62) 1331
classification of intractable constipation by means of, (123) 283
condyle, after injury of knee, (55) 2077
duodenum ulcer, (11) 704, (86) 1057
electric stimulation of phrenic nerve and, (107) 713
esophagus lesions, 1322—ab
ROENTGENOSCOPY, femur, interpretation of, (67) 280
fractures of cranium in children, (132) 971
gall-bladder, (35) 2160
gastro-intestinal tract, (75) 607, (53) 1055, (151) 1328, 1419—ab
gastro-intestinal tract, literature on, 2250
head injuries, (12) 704, (12) 1879
heart, clinical importance of, (122) 205
heart, sources of error in, (134) 205
ileocecal valve and appendix, (14) 1879
ileocecum, (72) 2074
ileocolic valve with reference to causation of ileac stasis, *1194
in the army, (52) 2264
intestine, in chronic constipation, aperient before, (2) 1609
intestine lesions and disorders of stomach and cap, (15) 426
intestine, small, acute obstruction, 1420—ab
intestine stasis, (46) 1605, (132) 1882
intestine, stenosis of small, (37) 1794
joint disease, chronic, (48) 1325
kidney and ureter, normal, (32) 509
kidney and ureter variations and disorders, (10) 1135
kidney disease, (47) 1885
nasal sinuses, (55) 197
pyloric stenosis, incomplete forms, (15) 803
sella turcica and hypophysis cerebri disease, (83) 1989
silver salt in salve in, of uterine tumors, (148) 206
stomach, (97) 518
stomach and duodenum ulcers, (40) 1096
stomach and intestines, (28) 809, (75) 1507
stomach cancer, (117) 814
stomach disease, surgical, (102) 282
stomach, importance of recess shadow in, (58) 1238
stomach, movements as studied under, (104) 980
stomach, normal (151) 276
stomach ulcer, (46) 60, (147) 276, (18) 350
tuberculosis, lung, (81) 203, (16-18) 1230, 1420—ab, (39) 1981
tuberculosis of children, (20) 1230
tuberculosis of kidney, (24) 809
viscera, technic of, (25) 2262
visceroptosis, (38) 196
ROENTGENOTHERAPY, *747
at Eppendorf Hospital, (79) 1062
cancer, (16) 199, 880—ab, (81) 1432, (100) 1507
cancer, changes in technic, (57) 1331
cancer, comparative value of radium and, (114) 1384, (4) 1883
cancer, deep-seated, (92) 813
cancer of skin, (146) 360
cancer of vagina, (66) 606
cancer of uterus, (3) 349
cancer, plus injection of blood, 880—ab
cancer, superficial, (80) 1432, (99) 1514
chlorosis, (244) 363
compressor instrument for moving skin of abdomen in, (72) 1332
deep, in internal medicine, (80) 68
deep, in malignant tumors, 1321—ab
deep, technic, 1321—ab, 1322—ab
dosage for, standardization of, (13) 704
dosage of gamma rays and, (48) 2264
dose in, massive versus fractional, 1322—ab
exophthalmic goiter, (64) 2168, (5) 2261
filters in, (54) 1790
fractures, (238) 363
in blood diseases, (93) 518
in gynecology, (90) 429
in gynecology and abdominal surgery, *816
ionometer for dosage in, (73) 1331
keratitis from acne rosacea, (97) 1243
leukemia, subacute macrolymphocyte, (79) 1145
liver and spleen, (37) 1429
mastoid, anteroposterior position for, (9) 1230
mastoid, practical results, (8) 1230
ROENTGENOTHERAPY, mediastinal tumor, (50) 509
plastic Roentgen ray proof preparation for use in, (5) 1883
radium as aid to, 1321—ab
sarcoma, giant-cell, (118) 1698
skin cancer, (44) 1981
skin diseases and cancer, (100) 1507
symposium on, 1321—ab
syphilis, skeletal manifestations, (10) 1230
thymus hypertrophy, not advisable, (120) 436
thymus, in exophthalmic goiter, (111) 2081
tuberculosis, surgical, (59) 1796
tuberculous bronchial lymph-nodes, (11) 1324
tuberculous glands, (5) 431, (78) 978
ulcer, rodent, (32) 894
uterus hemorrhage, (138) 616, *628
uterus tumors and hemorrhage, (120) 714
value of, (179) 973
ROOMS, artificial cooling of sick, in summer, 132—ab
ROSE-GATHERERS, diseases of hands in, of the Riviera, (42) 515
ROSENBACH'S tuberculin, experiences with, (78) 812
tuberculin in internal tuberculosis in children, negative experiences with, (68) 357
ROSS and Perkins' iron solution, 1778—P
ROSS JONES tests, 597
ROTUNDA Hospital, clinical report of, for one year, (8) 807, (10) 894, (16) 1793
ROUND LIGAMENT, sarcoma of, (126) 892
tumor protruding through inguinal canal, (167) 438
ROVSING'S operation for congenital, cystic kidney, *1033
ROYAL College of Surgeons of Edinburgh, professors of surgery at, (23) 200
Commission on Venereal Diseases, 176, 254, 333
RUBBER as source of hygienic danger, 1954—E
gloves, hospital economy in, (91) 510
goods, renewing, 1223
mitten for normal labor, (103) 1243
RUBELLA, experimental study, (40) 274
RUMINATION in infants, (196) 362
in man, 2 cases, (123) 520
RUSSELL'S White Drops, 1409—P
RUSSIA needs medical supplies, 1404
organizing corps for cholera service, 957
RUSSO-JAPANESE War, surgical impressions of, (40) 1510
RUSSO Reaction: See Reaction, Russo

S

SACRO-ILIAC joint, lesions of, (135) 431
joint separation and fracture of pelvis, (72) 353
traumatisms, (116) 198
SAFETY and sanitation maxims and observations, 1413—ab
ST. JOHN of Jerusalem, order of, unites with Red Cross, 1937
SALICYLATES in acute articular rheumatism, *1107
SALINOMETER, heat-compensated conductivity, description of, (33) 278
SALIVA, aerated, habit of swallowing, (17) 1141
SALPINGITIS, treatment by abdominal approach, (16) 427
SALT, antagonistic actions of, due to oppositely charged ions, (19) 2259
gastric juice altered in quantity but not quality by, 1584—E
infusion, (82) 1615
infusion and proctoclysis, (44) 1612
intravenous infusions, boiled water can be used for, in emergencies, (66) 1613
retention and elimination of excess in gastric juice, (51) 433
solution, effect of hemorrhage and reinjection of blood and, on vasomotor center, (21) 888
solution, effect of intravenous infusion of normal, on vasomotor center, (22) 888

SALT solution in cholera, *1200
  solution, Lane's method of giving, (134) 893
  solution, new technic for, (142) 284
  solution, normal, abuse of, *307, 595—C
  solution, normal, reduction of virulence of tubercle bacilli stored in, (35) 709
  solution, physiologic, 583—E
SALVARSAN, (46) 1981
  and mercury in syphilis, (90) 69, (265) 364, (57) 1238
  and neosalvarsan in hereditary syphilis, (2) 807
  and neosalvarsan in office practice, (123) 205
  and neosalvarsan in syphilis, (92) 2074
  and neosalvarsan, intramuscular and intravenous injections of, in frambe ia, (23) 894
  arsenic in urine after subcutaneous or intravenous injection of, (43) 2077
  deaths from, (135) 360, (204) 362
  dose of, (33) 1231
  eye and, (16) 967
  given mother, action of, on syphilis in fetus, (79) 1332
  in amebic dysentery, (132) 1983
  in frambesia, (14) 513, (23) 894
  in herpes zoster ophthalmicus, (178) 362
  in hog cholera, negative results, (212) 362
  in incipient anthrax, (148) 284
  in malignant syphilis, (103) 1888
  in non-syphilitic diseases, *375
  in paroxysmal hemoglobinuria, (26) 1980
  in scarlet fever, (102) 70, (34) 1611
  in secondary anemia and nutritional disturbances, small doses, (80) 517
  in soft chancre, (71) 1511
  in surgical syphilis, (123) 1890
  in syphilis, (78) 1326, (43) 1510, (88) 1881
  in syphilis, abortive treatment, (84) 68
  in syphilis in Dr. Steven's Hospital Dublin, (13) 1508
  in syphilis of nervous system, recurrences under, (72) 68
  in syphilis, results of, judged by Wassermann reaction, using cholesterin fortified antigen, (62) 1137
  in syphilis, 7 months' experience with *2277
  in syphilitic meninges, (57) 67
  in tabes favorable influence of, (94) 1242
  intraspinal injections in general paralysis and tabes dorsalis, articles on, 1781
  intraspinal injections, technic for, (140) 360, (94) 814
  intravenous administration, in infants, (118) 1274
  intravenous injections in syphilis, (56) 60
  kidney insufficiency and danger from, (57) 1431
  latent microbism, and, (42) 1239
  libel suits on account of, 45
  needle self-retaining, for administering, intravenously, *1029
  neuroretinitis and iridocyclitis under, 7 cases, (107) 1074
  organotropic action of, (180) 439
  papillary iritis following injection of, (12) 967
  parasyphilitic nervous disease and late syphilitic manifestations, intraspinous injection of, (1) 58
  price of, (155) 360, (208) 362
  technic for, and affinity for tissues, (180 192) 439
SALVARSANIZED serotherapy, 243—ab
  serum in cerebrospinal syphilis, (31) 427
  serum in syphilis of central nervous system, intraspinal injections of, *1936
  serum in syphilis of nervous system, (82) 429, (59) 606
  serum in tabes dorsalis, general paralysis and cerebrospinal syphilis, 1878—ab
  serum in tabetic optic nerve atrophy, *866
  serum, intraspinal injections of, in general paralysis, *1274
  serum, intraspinous use of, (62) 1424
  serum, intrathecal injection of, (25) 65
SALVARSANIZED serum, results of 100 injections of, *1277
SALVE and Pirquet tuberculin tests for tuberculosis in children, (123) 1244
  silver salt in, for roentgenoscopic diagnosis of uterine tumors, (148) 206
SAMUELS, "Professor," convicted, 1403—P
SANATOGEN, 1127—P, 1859—E
  and war, 2145
  feeding value of commercial casein and, *1831
SANATORIUM and hospitals for tuberculosis in United States, comparative cost of maintenance, (60) 429
  Mount Lebanon, at Juneh and Chebanin, Syria, (23) 427
  pleasant name for hospitals and, 1504—E
  public and private, increasing cost of building and running of, (48) 1142
  state, for tuberculosis, (107) 1234
  state, problems of, (56) 2073
  state, promoting efficiency of, (12) 1135
  treatment for lung tuberculosis, results of, in various countries, (24) 975
  tuberculosis, city, creating by referendum, (20) 2159
  tuberculosis, Gaylord Farm, 10 years' work at, (51) 2073
  tuberculosis, graduates, employment of, (79) 1233
  tuberculosis, in Manitoba, 591
  tuberculosis, keeping up treatment after leaving, (49) 1506
  tuberculosis, needs of patients discharged from, (77) 1233
  tuberculosis, problems of private, (15) 508
  tuberculosis, what afterward, (78) 1233
  usefulness of, (111) 892
SAND flies, flagellate infection of, (14) 1984
  test for bile pigment and hemoglobin in urine, (58) 1613
SANITARY and medical affairs in Vera Cruz, 959
  conditions in Turkey in Asia, 424—ab
  environment in places of employment, 51—ab
  expenditures for social purposes and, in Austria, 497
  hygiene in temporary camp, (56) 1701
  inspector's work, legal aspect of, (119) 1139
  laws, (43) 196
  laws, enforcement of, 867—ab
  officer in field, (99) 429
  post cards, 2242
  regulation of railroad transportation, (150) 72
  service of maneuver camps, (63) 806
  service, organization of, in Paris, 1310
  service, routine, problems in, (82) 1327
SANITATION, army, prize for, 1867
  at home, 341—ab
  battlefield, 1310
  homes and work-shops, (133) 276
  in Indiana, practical, 489—E
  in Vera Cruz, 258
  labor camp, 1542—ab
  maxims and observations on safety and, 1413—ab
  mine, 1763—T
  municipal, 56—ab, (141) 431
  railway, phases of, *2032
  relation of, to death and disease, (48) 806
  rivers and harbors, rational basis for, (2.) 2159
  rural, 2048—E
  swimming pools, (36) 804
  training camps, 1867
SAPHENOUS vein, varix of internal, resembling strangulated femoral hernia, (76) 197
SAPONIN, resistance of blood corpuscles to hemolysis by, (19) 1059
SARATOGA, mineral waters of, (2) 58, (14) 2070
  waters, radio-activity of, 788—E, 795—P
SARCOID of Boeck, *969
SARCOMA, (149) 1099
  and cancer of breast, (53) 275
  bones, long, diagnosis and treatment, (15) 1879
SARCOMA, chicken, histologic variations in, induced by filtrable agents, (49) 515
  chorioidal, (61, 62) 1055
  Coley's mixed toxins in, (14) 803
  cutaneous, seven cases of, (37) 967
  dura mater, from mastoid process, 2 cases, (26) 1420
  eyeball, (186) 439
  femur, lower end involving synovial membrane, (25) 1605
  femur, periosteal round-celled, (38) 1506
  giant-cell, surgery and roentgenotherapy in, (118) 1698
  intra-ocular, (130) 1328
  kidneys, primary round-cell, in both, in girl of eight, (67) 898
  melanotic, of chorioid (62) 1055
  myeloid, 50 cases, (6) 2310
  multiple round-cell, originating in nares, (27) 1793
  ovaries, in child of three, 1978—ab
  pelvis, primary, (24) 1141
  periosteal, (66) 275
  stomach, (5) 194
  stomach and small intestine, (157) 361
  stomach, primary, (186) 286
  stomach, primary, partial gastrectomy for, (14) 2310
  thorax, (115) 2075
  tibia, upper end of, (129) 512
  tissue, human, cultivation of, in vitro, (74) 891
  trachea, primary, (61) 707
  transplantable, in uterus of rat, (27) 278
  transplantable, influence of diet on, in rats, 191—ab
  uterus cervix, grape-like, (21) 1610
  uterus, round ligament of, (126) 892
  uterus, secondary to infectious granuloma, (66) 67
SATELLITE cells in 50 cases of mental disease, (6) 1793
SCABIES in Boston, (45) 352
SCALP, avulsion of, (129) 892
  convoluted thickening of, (44) 811
  ringworm of beard and, (31) 895
  ringworm of, in adult, (77) 1697
  ringworm of, treatment, (92) 1791
  wound of brain and, extensive, *1075
SCAPHOID, fracture of semilunar bone and, secondary changes after, (63) 1886
SCAPULA, section of, in correcting nasal deformity, (50) 969
  spasmodic contraction of muscles, (56) 434
SCARLET FEVER, (29) 1329, (15) 1420
  anaerobic cultures in, (29) 804
  and nodose erythema, (169) 361
  attempts to produce, in monkeys, (39) 274
  bacterin, 796
  dissemination of, by fomites, (85) 1063
  Döhle's leukocytic inclusion bodies in, investigation of, (20) 278, (67) 357, (99) 1705
  effect of human serum in, not due to lipoids, (93) 713
  etiology of, (88) 281
  fusiform bacilli in, (192) 286
  in surgical patients, (109) 1243
  infection in, duration of, (50) 2261 (54) 515
  infectious agent of, 796
  malignant, blood serum of immunes in, (11) 1054
  meningeal complications of, (55) 710, (47) 896
  Milne's method to render measles and, mild and non-contagious, (87) 281
  peritoneal complications of, (53) 201
  salvarsan in, (102) 70, (34) 1611
  serum concentration in, variations of, (65) 977
  treatment, (84) 607
  urine in nephritis of diphtheria and, (9) 1058
SCARLET RED in atrophic rhinitis, (58) 197
SCHICK reaction, (14) 704, 2134—E
SCHISTOSOMIASIS japonica, two cases, (4) 967
SCHISTOSOMUM eggs, isolated chronic appendicitis from, (48) 2077
SCHLATTER'S sprain, 2 cases of, (40) 432
SCHOOL: See also Colleges; Education, Medical; University
SCHOOL athletics and gate money, 1970—C
  athletics, proper regulation of, 1970—C
  attendance, compulsory, compulsory vaccination compatible with, 2307—Ml
  boards, power of, to require physical records of pupils by physicians, 1318—Ml
  Children: See Children, School
  disinfection of, 2227—T
  hygiene, (141) 893, 949—E, 1204—T
  Hygiene Congress, 493
  lunch movement, unappreciated features of, 2234—E
  medical, and medical college, definition of, 668
  medical, and state, *648
  medical, choice of, 690—E
  medical, effect of war on, 2055
  medical examining bodies and, of United Kingdom, (15) 1141
  medical, in Belgium, 1751—ab
  medical inspection and special, (17) 1793
  medical inspection of, (7) 58, 2042—T
  medical inspection of, in Ohio, (104) 123
  medical inspection of, in Ontario, 1589
  medical inspection of, in rural districts, (18) 1793
  medical inspection of public, (122) 198
  medical, on the making of a Scottish, (4) 807
  medical, Paris, resumption of courses in, 2055
  medical, state university, 675
  public, courses for adults in health preservation, Rochester, N. Y., 1211—E
  teaching hygiene in public, résumé and recommendations of committee to investigate, (20) 427
  teaching of sex hygiene in, 1769—E, (2) 2070
  treatment must be tested by principle and practice of particular, 603—Ml
SCHOOLBOOKS, influence of, on eyesight of children, 885—ab
SCHOOLHOUSE, 1855—T
  disease and dust, prevention of, (58) 1137
  fumigating, 1597
  law in Indiana, improved schoolhouses as result of, 489—E
SCHYZOTHYMIA, Kohnstamm's, (30) 1794
SCIATIC artery, aneurysm of, (28) 1605
SCIATICA, (121) 2164
  cured by removal of subfascial lipoma in foot, (153) 206
  cured in 3 weeks, (106) 1138
  injections, deep, in, (35) 1611
  mud baths for, (48) 811
  spinal nerve root affections causing, (48) 811
  spurious and genuine, and gluteal and crural types of fibrositis, (6) 1235
  stretching sciatic nerve in, (90) 1063
SCIENCES, medical, and clinical medicine, *2083
SCISSORS and forceps, surgical, 957
SCLERA, melanosis of left, (118) 714
  tuberculosis of primary origin, (72) 1137
SCLERECTOMY, Lagrange, and Elliot trephine operation for glaucoma, (103) 608
SCLERODERMA circumscripta, case of, (39) 275
  diffuse, 2 cases, (33) 2076
  localized, case of, (53) 509
SCLEROSIS: See also Arteries, Diseases of
SCLEROSIS, acute insular, and disturbances of vision, *2001
  corpus callosum, of gonorrheal origin, (90) 1888
  disseminated, (5) 1604
  disseminated, treated by inoculation, (6) 1058
  multiple, due to syphilis, diagnosed clinically in spite of negative laboratory tests, (136) 1234
  multiple, in boy of twelve, (49) 612
  multiple, peripheral pigmentation of cornea with symptoms simulating, (8) 967

REST and exercise in lung tuberculosis, 347—ab
  cure, place for, 1688
RESUSCITATION after hanging, psychic changes after, (76) 2108
  from mine gases, 1117—E
RETINA, detachment of, cured by operation, (148) 361, (16) 1329
  gliosarcoma of, with recurrence in maxillary antrum, (115) 276
RETRACTOR and tube pilot for tracheotomy, (136) 1882
  new self retaining abdominal, and wound protector, (149) 277
REVACCINATION morally obligatory, (57) 1701
REYMOND, Emile, death of, 1868
RHABDITIN, (70) 1424
RHEUMATISM, (34) 1885
  acute, (65) 275
  acute articular, heart and renal complications, (110) 1426
  acute articular, mental disturbances with, (9) 1878
  acute articular, salicylates in, *1107
  acute articular, sodium salicylates in, intrarectal administration of, *1004
  acute articular, treatment, (103) 62
  acute heart-block, case of, (9) 278
  acute, treatment of, (98) 2081
  articular, chronic, with enlarged glands and spleen, (91) 1704
  carditis due to, acute, auricular flutter in, (1) 893
  chorea and, (7) 354
  heart block in acute carditis due to, (7) 2310
  in children, (43) 428, 1502—ab
  joints, chronic, enlarged lymph-nodes with, (64) 2264
  muscular, massage in diagnosis and treatment, (70) 2079
  passive congestion in, 1761—ab
  vaccine therapy of chronic, (88) 62
RHINITIS: See also Colds
RHINITIS, atropic, scarlet red treatment of, (58) 197
  atrophic, with ozena, etiology and surgical treatment, (129) 1608
  pleomorphic branching organism isolated from case of chronic, (31) 1504
RHINOLITH in child of eight, (91) 1607
RHINOLOGY and ophthalmology, contact points of, with general medicine, (41) 196
RHINOPLASTY, corrective, (84) 429
RHINOSPORIDIUM kinealyi, (41) 2076
RHIZOPUS nigricans, toxin of, (8) 508
RHIZOTOMY for gastric crises in tabes, (8) 2075
  for relief of pain, (9) 2075
  for spastic paralysis, (7) 2075
RHODE ISLAND medical news, 1773
  state board April report, 188
RIB, excision of clavicle and first, for malignant tumor, (140) 277
  resection of, to immobilize tuberculous lung, (70) 898
RIBERI prize, 1215
RICE diet, ammonia and total nitrogen excretion in urine on different diets especially, (66) 977
  milled, and beriberi, (9) 807
  unhusked, nerve degeneration in fowls fed on, (123) 430
RICHTER'S strangulated hernia, case of, (30) 2076
RICKETS: See Rachitis
RIGG'S DISEASE: See Pyorrhea, Alveolar
RIGOR, (25) 894
RINDERPEST in Carabao, atypical case, (119) 420
  transmission, experiments on, (120) 430
  virus, cultivation of, as described by Baldrey, (140) 1698
  virus in vitro, cultivation experiments of, (118) 420
RINGER'S solution in pregnancy toxic dermatosis, (181) 286
RINGWORM and favus of nails, *640
  scalp and beard, (31) 895
  scalp, in adult, (77) 1697
  scalp, treatment of, (92) 1791
ROADS, good, prevent disease, 908—ab
ROBINOL, 49—P
ROCHESTER, N. Y., public school courses for adults in health preservation, 1211—E
ROCKEFELLER *Institute changes*, 332
  Institute donation to, 42
ROCKEFELLER sanitary commission, disbanding of, 2143
RODMAN, address of, before Clinical Congress of Surgeons of North America, 591
  operation for breast cancer, *1256
  W. L., president-elect of A. M. A., 37—E
ROENTGEN, Prof., returns decoration, 1042
ROENTGEN RAYS, action of radium and, on spleen, (147) 360
  and action of enzymes, (14) 1503
  and bismuth meal method in diagnosis of gastro-intestinal diseases, (16) 894
  and operations on stomach, (23) 1605
  and radium, comparison of uses of, with lantern demonstrations, (57) 2261
  and radium in radiotherapy, *743
  apparatus in army, (54) 1701
  cancers, (147) 438
  danger of, from standpoint of eugenics, (64) 1144
  dermatitis, treatment, 1321—ab
  Diagnosis: See Roentgenology; Roentgenoscopy
  dosage and penetration, possibility of estimating, (22) 350
  equipment and work in army at present time, (21) 350
  immediate relief from pain under, (36) 1429
  in war, (1) 2075
  liability, 1875—Ml
  localizing simply and immediately, (2) 2075
  pregnancy and, (48) 515
  proof preparation, plastic, of use in roentgenotherapy, (5) 1883
  tubes, old, (40) 1935
  work in field, (37) 1612
  work, red light in, (74) 1331
RÖNTGENIZATION for deep radiotherapy, continuous, (134) 283
ROENTGENIZED serum, action on blood, (63) 1430
ROENTGENOGRAMS, (20) 350
  bladder, (62) 1431
  breech presentation at 8½ months complicated by fibroids, confirmed by, (122) 63
  in myxedema, transverse striation in, (228) 363
  interpretation of, (61) 606
  of jaws to determine conditions in teeth, *2074
ROENTGENOGRAPHY, apparatus for compression based on Bucky effect, (2) 1426
  and bismuth test-meal, technic of, (40) 1506
  and interpretation of negative, (142) 1235
  centroscope and episcope, (31) 2076
  cranium, technic for, (36) 611
  in tuberculosis dispensary, (2) 609
  larynx and trachea, *1827
  liver, spleen and diaphragm, (108) 204
  localization of foreign bodies by, (25) 2311
  nephrolithiasis and kidney tuberculosis, differential diagnosis by, *2006
  of children, (50) 60
  of prostate enlargement by air inflation of bladder, (88) 1056
  sphenoidal sinus, direct, (62) 613
  thymus enlargement, (87) 1607
ROENTGENOLOGIST present at operations for gastro-intestinal lesions, operative indications for, 1419—ab
  protection of, in fluoroscopy, (64) 1796
ROENTGENOLOGY in epilepsy, (26) 1054
  in gynecology, future of, (17) 1610
  in pediatrics, (17) 1979
  instruction in, *651
ROENTGENOSCOPY, (70) 429
  and pulmonary physical signs in healthy adults, (33) 2072
  appendix, (65) 509, (79) 517, (23) 1141, 1228—ab
  cancer of stomach, early and latent, (60) 1424
  cancer of stomach, misleading, (62) 1331
  classification of intractable constipation by means of, (123) 283
  condyle, after injury of knee, (55) 2077
  duodenum ulcer, (11) 704, (86) 1057
  electric stimulation of phrenic nerve and, (107) 713
  esophagus lesions, 1322—ab
ROENTGENOSCOPY, *femur, interpretation of*, (67) 280
  fractures of cranium in children, (132) 971
  gall-bladder, (35) 2160
  gastro-intestinal tract, (75) 607, (53) 1055, (151) 1328, 1419—ab
  gastro-intestinal tract, literature on, 2250
  head injuries, (12) 704, (12) 1879
  heart, clinical importance of, (122) 205
  heart, sources of error in, (134) 205
  ileocecal valve and appendix, (14) 1879
  ileocecum, (72) 2074
  ileocolic valve with reference to causation of ileac stasis, *1194
  in the army, (52) 2264
  intestine, in chronic constipation, aperient before, (2) 1609
  intestine lesions and disorders of stomach and cap, (15) 426
  intestine, small, acute obstruction, 1420—ab
  intestine stasis, (46) 1605, (132) 1882
  intestine, stenosis of small, (37) 1794
  joint disease, chronic, (48) 1325
  kidney and ureter, normal, (32) 509
  kidney and ureter variations and disorders, (10) 1135
  kidney disease, (47) 1885
  nasal sinuses, (55) 197
  pyloric stenosis, incomplete forms, (15) 803
  sella turcica and hypophysis cerebri disease, (83) 1989
  silver salt in salve in, of uterine tumors, (148) 206
  stomach, (97) 518
  stomach and duodenum ulcers, (40) 1096
  stomach and intestines, (28) 809, (75) 1507
  stomach cancer, (117) 814
  stomach disease, surgical, (102) 282
  stomach, importance of recess shadow in, (58) 1238
  stomach, movements as studied under, (104) 980
  stomach, normal (151) 276
  stomach ulcer, (46) 60, (147) 276, (18) 350
  tuberculosis, lung, (81) 203, (16-18) 1230, 1420—ab, (39) 1981
  tuberculosis of children, (20) 1230
  tuberculosis of kidney, (24) 809
  viscera, technic of, (25) 2262
  visceroptosis, (38) 196
ROENTGENOTHERAPY, *747
  at Eppendorf Hospital, (79) 1062
  cancer, (16) 199, 880—ab, (81) 1432, (100) 1507
  cancer, changes in technic, (57) 1331
  cancer, comparative value of radium and, (114) 1374, (4) 1883
  cancer, deep-seated, (92) 813
  cancer of skin, (146) 360
  cancer of vagina, (66) 606
  cancer of uterus, (3) 349
  cancer, plus injection of blood, 880—ab
  cancer, superficial, (80) 1432, (99) 1514
  chlorosis, (244) 363
  compressor instrument for moving skin of abdomen in, (72) 1332
  deep, in internal medicine, (80) 68
  deep, in malignant tumors, 1321—ab
  deep, technic, 1321—ab, 1322—ab
  dosage for, standardization of, (13) 704
  dosage of gamma rays and, (48) 2264
  dose in, massive versus fractional, 1322—ab
  exophthalmic goiter, (64) 2168, (5) 2261
  filters in, (54) 1790
  fractures, (238) 363
  in blood diseases, (93) 518
  in gynecology, (90) 429
  in gynecology and abdominal surgery, *816
  ionometer for dosage in, (73) 1331
  keratitis from acne rosacea, (97) 1243
  leukemia, subacute macrolymphocyte, (79) 1145
  liver and spleen, (37) 1429
  mastoid, anteroposterior position for, (9) 1230
  mastoid, practical results, (8) 1230
ROENTGENOTHERAPY, mediastinal tumor, (50) 509
  plastic Roentgen ray proof preparation for use in, (5) 1883
  radium as aid to, 1321—ab
  sarcoma, giant-cell, (118) 1698
  skin cancer, (44) 1981
  skin diseases and cancer, (100) 1507
  symposium on, 1321—ab
  syphilis, skeletal manifestations, (10) 1230
  thymus hypertrophy, not advisable, (120) 436
  thymus, in exophthalmic goiter, (111) 2081
  tuberculosis, surgical, (59) 1796
  tuberculous bronchial lymph-nodes, (11) 1324
  tuberculous glands, (5) 431, (78) 978
  ulcer, rodent, (32) 894
  uterus hemorrhage, (138) 616, *628
  uterus tumors and hemorrhage, (120) 714
  value of, (179) 973
ROOMS, artificial cooling of sick, in summer, 132—ab
ROSE-GATHERERS, diseases of hands in, of the Riviera, (42) 515
ROSENBACH'S tuberculin, experiences with, (78) 812
  tuberculin in internal tuberculosis in children, negative experiences with, (68) 357
ROSS and Perkins' iron solution, 1778—P
ROSS JONES tests, 597
ROTUNDA Hospital, clinical report of, for one year, (8) 807, (10) *894, (16) 1793*
ROUND LIGAMENT, sarcoma of, (126) 892
  tumor protruding through inguinal canal, (167) 438
ROVSING'S *operation for congenital, cystic kidney*, *1083
ROYAL College of Surgeons of Edinburgh, professors of surgery at, (23) 200
  Commission on Venereal Diseases, 176, 254, 333
RUBBER as source of hygienic danger, 1954—E
  gloves, hospital economy in, (91) 510
  goods, renewing, 1223
  mitten for normal labor, (103) 1243
RUBELLA, experimental study, (40) 274
RUMINATION in infants, (196) 362
  in man, 2 cases, (123) 520
RUSSELL'S White Drops, 1409—P
RUSSIA needs medical supplies, 1404
  organizing corps for cholera service, 957
RUSSO-JAPANESE War, surgical impressions of, (40) 1510
RUSSO Reaction: See Reaction, Russo

S

SACRO-ILIAC joint, lesions of, (135 431
  joint separation and fracture pelvis, (72) 353
  traumatisms, (116) 198
SAFETY and sanitation maxims observations, 1413—ab
ST. JOHN of Jerusalem, order unites with Red Cross, 195
SALICYLATES in acute arti rheumatism, *1107
SALINOMETER, heat - compe conductivity, description of 278
SALIVA, aerated, habit of ing, (17) 1141
SALPINGITIS, treatment by inal approach, (16) 427
SALT, antagonistic actions oppositely charged io 2259
  gastric juice altered tity but not quality by
  infusion, (82) 1615
  infusion and proctocly 1612
  intravenous infusions, can be used for, in (66) 1613
  retention and elimin cess in gastric juic
  solution, effect of he reinjection of bl vasomotor center,
  solution, effect of in fusion of normal, center, (22) 888

SHOCK, surgical, prevailing views on, (54) 811
SHOES and boots from historical and surgical points of view, (40) 279
  foot as affected by modern, (99) 2074
  soldiers', (8) 1883, (18) 2076
SHOOTING, vision necessary for, medicolegal problem, (8) 1235
SHOULDER, actinomycosis of, exarticulation for, (79) 202
  arthrodesis of, to correct deltoid paralysis, 9 cases, (91) 1616
  aviator's arrow pierces peritoneum and, (71) 2067
  contusion, pathology of, (33) 1237
  inflammation, after contusion, (117) 436
  injury, (100) 608
  injury, mechanism for, *1019
  operation for arthrodesis on hip-joint, knee and, (78) 1060
  pain in, as phrenic-nerve symptom, with acute surgical abdominal disease, (50) 1060
  painful affections of, (53) 279
  snapping, (106) 282
SHRAPNEL, localization of bullets and, (8) 2310
SICKNESS, duration of, average, 1861—E
SICKROOMS, artificial cooling of, (6) 887
SIDE-CHAIN theory, (153) 360
SIGMOID, adenomyomata of fallopian tube and, with adenomyoma of uterus, (16) 1610
  colon, calcified fibroma of uterus compressing, (120) 892
  diverticulitis simulating malignancy, (64) 606
  flexure, disease of appendix, cecum and, (76) 711
  redundant, *449
  sinus, thrombophlebitis of, originating in ear, (98) 62, *1389
  valves of pulmonary artery, experimental operations on, (51) 428
SIGMOIDOSCOPY, unusual phases of, (56) 969
SILK-TENDON plastics to prevent postoperative adhesions, experimental study of, (106) 511
SILO, sudden death in, 4 cases, *1570
SILVER nitrate in eustachian tube for tinnitus, (29) 1420
  nitrate in nasal hemorrhage, (91) 1791
  preparations, (31) 1611
  salt in salve vehicle for roentgenoscopic diagnosis of uterine tumors, (148) 206
SINCLAIR'S method for operating on impassable urethra stricture, (131) 1882
SINGLE tax and public health, relation of, (13) 350
SINUSES, accessory nasal, and eye, physiologic and pathologic relations, (57) 197
  accessory nasal, diagnosis of disease of, (44) 1325, (32) 2076
  accessory nasal, inflammation of, (60) 1982
  accessory nasal, screw-worms in nose and, *2288
  accessory, suppuration, vaccine therapy in, (65) 707
  arhythmia in, with high blood-pressure, (34) 514
  cavernous, orbital approach to, (34) 1055
  cavernous, thrombosis of, case report, (139) 971
  cavernous, thrombosis of, complicating suppurative labyrinthitis, (23) 1420
  cavernous, thrombosis of, simultaneous bilateral, 12 hours after mastoid operation, (32) 1421
  diseases, nasal tampon treatment of, and eye complications, (138) 199
  frontal, osteoma in, (172) 361
  frontal, suppuration, (36) 352
  frontal, suppuration, chronic, intranasal treatment of, (187) 973
  infection, eye affections caused by, (152) 972
  lateral, thrombosis, 4 cases with recovery, (48) 60
  maxillary, vacuum diseases of, (17) 273
  nose, roentgenoscopy of, (55) 197
SINUSES operation, resection jugular vein in, (28) 1420
  petrosal, superior, hemorrhage from, *468
  sigmoid, otitic thrombosis of, without symptoms, (98) 62
  sigmoid, thrombophlebitis of, originating in ear, *1389
  sphenoid, direct roentgenography of, (62) 613
  sphenoid, disease of, variations of, (35) 1421
  transverse, and shape of nasopharyngeal cavity, (106) 1334
SINUSITIS and pathology of eye, (50) 1430
  frontal, endonasal treatment of, (57) 350
  frontal, osteomyelitis in two-thirds of skull from, (79) 1507
  frontal, treatment of, (86) 1331
  symptoms and complications of, (49) 279
SIOUX Valley Physicians' convention, 493
SIX Day fever in Panama, (4) 706
SIZE of medical publications, standardization of, 177
  of offspring, effect of calcium and protein fed pregnant swine on vigor, bone, coat, condition and, (10) 272
SKIN abscesses, multiple, due to sporothrix, 2 cases, (56) 710
  autoserotherapy of diseases of, (51) 1981
  blemishes, malignant degeneration of, (19) 605
  Cancer: See also Epithelioma
  cancer, (102) 1507
  cancer, roentgenotherapy, (44) 1981
  cancer, roentgenotherapy inadequate for burrowing, (146) 360
  colloid degeneration of, (74) 1697
  diphtheria, of unusual types, *398
  diseases among troops, (52) 1795
  diseases in American negro, (76) 1697
  diseases, industrial, (52) 606
  diseases, industrial, nervous system in, (53) 66
  epithelium of adult frog, cultivation of, (26) 2259
  extension from, thread and wire, in fractures and paralysis, (104) 615
  grafting, (74) 1790
  grafting, anaphylaxis following, for burns, *775
  grafting, preparation of dry bony areas for, (46) 1422
  grafts, ectropion of eyelids corrected by, (115) 1882
  grafts, small deep, *985
  lesions from tuberculosis or inherited syphilis, (114) 714
  nitro-muriatic acid for boils and infections, (101) 353
  of abdomen, compressor instrument for moving, in roentgenotherapy, (72) 1332
  parasitic lesions of, and lupus, treatment, (23) 1135
  radium and Roentgen ray in cancer and diseases of, (100) 1507
  radium in diseases of, (59) 890, (56) 2261
  radium in diseases of, use and limitations in, *737
  reaction, anaphylactic, in hay-fever from pollen, (24) 1880
  reaction in differentiation of small-pox and chicken-pox, (69) 1702
  reaction of tuberculous foci in, to tuberculin, (226) 363
  reaction to tuberculin, local necrosis following, (111) 1243
  reaction to tuberculin, Pirquet, clinical value of, (94) 1989
  reaction to tuberculin tests, curves to record, (93) 813
  regeneration of, influence of substances inhibiting tumor growth on, (49) 1789
  sensation, nature of, with instrument for its measurement, (47) 1231
  sterilization by iodin, complete, (2) 507
  sterilization, requirements of ideal, *474
  tumors of mucous membranes and, desiccation treatment of, *925
  yellow, after eating raw scraped carrots, (103) 1146
SKULL: See also Brain
SKULL, bullets in, indications for tardy extraction of, (143) 72
  fetus, of 40 mm., (2) 603, (1) 1323
  fetus, shape of, with contracted pelvis, (147) 206
SKULL fracture, (84) 197, (158) 972
  fracture at base of, recovery, (146) 1328
  fracture, countercoup, (31) 273
  fracture, deafness following, (73) 357
  gunshot wounds of, experiences with (55) 2264
  infants', supernumerary bone in, (84) 1703
  injuries to brain and, (44) 2160
  meningitis after subcutaneous injuries to spine and, (65) 898
  operation to close gap in, (103) 1990
  osteomyelitis in two-thirds of, from frontal sinusitis, (79) 1507
  steeple, (91) 203
  wounds of vertex by way of base of, (145) 72
SLEEP, 1112—T
  disturbances in children, (194) 362
  physiology of, (175) 439
SLEEPING SICKNESS: See Trypanosomiasis
SMALL-POX, 1478—T
  diagnosis of, (33) 1611
  electragol in plague and, (12) 199
  hematology of vaccinia and, (107) 518
  in middle west, 1774
  organism of chicken-pox, vaccinia and, (72) 606
  personal experiences with, (156) 284
  pitting, carbon-dioxid snow for, (38) 1794
  red light in, (77) 1989
  skin reaction in differentiation of chicken-pox and, (69) 1702
  vaccination, (124) 1983, (107) 2169
  vaccination and new vaccination law in Siam, (35) 1985
  vaccination, immunity to, (76) 1988
SMOLLETT, Tobias, physician and novelist, (37) 1696
SNAKE bite, potassium permanganate for, (4) 1984
  bite, treatment of, (3) 1984
  poisoning, symptoms and treatment, (90) 1982
SOAP, green, course of inunctions with, (79) 1989
  liquid, formulae for, 1129
SOCIAL EVIL: See Gonorrhea; Prostitution; Syphilis; Venereal Diseases
SOCIAL Hygiene, Alliance on, meeting of, 334, 1309
  legislation and administration, influence and responsibilities of medical profession, (13) 199
  problems, and modern medicine, (57) 969
  service and engineer, (120) 1139
  service and work, (78) 1137
  service in hospitals, 496
  service in hospitals as part of efficient diagnosis and treatment, value of, (67) 707
  service of psychopathic hospital, function of, (26) 195
  status of practice of medicine, *2171
  worker and medical health officer, (121) 1139
SOCIALIZATION of medical teaching and medicine, (70) 606
  of medicine, articles on, 698
SOCIETY, county medical, (65) 890
  medical, noise as a hindrance to effectiveness of meetings of, 489—E
  state medical, needs and purposes of, (41) 428
SOCKS and gloves, advantages of double, in cold weather, (44) 2077
SODIUM and potassium compounds, 1034—E
  bicarbonate, action of, on pancreas secretion, (132) 437
  bicarbonate in cystinuria, effect of, 407—E
  cacodylate, (20) 1054
  cacodylate, toxic action of, 1223
  chlorid in nephritis, *1906, 2305—C
  citrate and lactose in infant feeding, (73) 1614
  fluorid, a poison, 323—E
  iodids, action of iodin ion, potassium and, on heart and blood-vessels, (36) 1325
  salicylate in fever, treatment of 3,000 cases, (36) 196
SODIUM salicylate, intrarectal administration, in acute articular rheumatism, *1004
  tartrate, pharmacology of, *1076
  tartrate, toxicity of, (15) 1503
SOLDIERS and officers, necessity for preparedness of, (98) 1881
  convalescent homes for, (115) 1705
  crippled, school for, 2241
  ear, injury, (33) 2263
  experiences of surgeon on firing line with, (70) 2167
  feet and footgear of, (8) 1883, (18) 2076
  feet, care and treatment of, on marches, (42) 2166
  foot tumors, (54) 1796
  health of, in field, 2054
  hygiene for, awaiting transportation to front, (21) 2075
  march, arranging for, 1775
  nervous and mental diseases among, (49) 2264
  protection against cold for, 2254—ab
  sanitary, size of, (62) 1506
SOUTH CAROLINA medical news, 877, 1403, 1588, 1864, 2142, 2239
  Dakota medical news, 877
SOUTHERN Experimental Biologists, meeting of, 2052, 2143
  health exhibition, 1215
  Medical Association, meeting of, 331
SPANISH medical journals and manuals, 263
SPARTEIN sulphate, cardiovascular and renal actions of, (113) 63
SPASMOPHILIA, (64) 516, (36) 1605
  and heart muscle in children, (104) 814
  in infants, treatment of, (121) 436
SPASMS, (100) 970
  unilateral, of traumatic-hysteric origin, (82) 1989
SPECIALISM, 414, 1500—ab
SPECIALIST and general practitioner, 593
  education of, (51) 275
  itinerant, Buck and Loffler, 337—P
  work for troops, (109) 1705
SPECIALTIES, licensing practitioners of, validity of statute providing for, 1052—Ml
SPECIMENS, arsenious jelly method of mounting pathologic, addendum to, (23) 278
  museum, fat stains for differentiation in preparing, (10) 1058
SPECTACLES for gunners, (53) 2264
  historic data concerning, (137) 1608
  how to fit, (87) 1138
SPEECH centers, localization of motor and, in cortex and brain, (34) 709
  Defects: See Stammering and Stuttering
  hygiene of voice and, (94) 713
  right hemisphere of brain and, (69) 1797
SPENS, Dr. Thomas, first describer of Stokes-Adams syndrome, (16) 432
SPERMATIC cord, pain on pulling right, as sign of appendicitis, (77) 1887
SPHENOID disease with brain symptoms, 2 cases, (61) 1605
  sinus, direct roentgenography of, (62) 613
  sinus disease, variations of, (36) 1421
SPHINGOMYELIN, (73) 969
SPHINGOSINE, (76) 969
SPHYGMOMANOMETER in life insurance examinations, diagnostic value, (53) 1506, *1752
SPINA BIFIDA, (121) 2075
SPINACH as food and medicine, (52) 612
SPINAL CORD disease, lack of inhibitor reflex cause of rapid labor in, (64) 67
  gunshot wound of, (11) 2310, (31) 2311
  localizing function in, for muscles of hand, leg and diaphragm, (77) 1144
  disease, pain and tenderness in, surgical treatment, 2257—ab
  pain in joints from irritation of segments of, by visceral disease, (113) 282
  Puncture: See Rachicentesis
  tumor, (138) 437
  tumors, painless, *6

SPINE, ankylosis, (57) 1795
  ankylosis, chronic, findings in, (203) 362
  deformity of thorax and, (188) 439
  disease of hip and, (1) 1426
  dislocation of cervical vertebrae, (111) 436
  fracture and fracture dislocation of, bone transplantation in, (133) 1883
  gunshot wounds of, (103) 1607
  Lateral Curvature of: See Scoliosis
  lumbosacral, periostitis of, diagnosis of, (6) 272
  meningitis after subcutaneous injuries to skull and, (65) 893
  metastasis of hypernephroma in, (139) 360
  osteo-arthritis of, (110) 1234
  subluxations, nature and cause, (71) 606
  syphilis of, symptomatology and neural complications, (2) 967
  trauma of, operative treatment, (35) 1238
  tuberculosis, (40) 709
  tuberculosis, bone transplantation for, (63) 890
  tuberculosis, deformity curves in, operative procedure, (20) 58
  tumor, exaggeration of symptoms after rachicentesis, (62) 2078
  tumor, laminectomy for, (27) 1605
  Vertebra: See Vertebra
SPIROCHAETE PALLIDA, cultivation of, (101) 1990
  India-ink method of examination of, *1666
  isolation from blood in syphilis, *142
  living and stained, demonstration of, (79) 1881
  second infection with, (99) 1138
SPIROCHETE and fusiform bacilli *in lesions in Philippines*, (32) 1788
  collargol preparations of, durable, (56) 1143
  findings in rabbits, (99) 615
  in semen, does it infect mother or ovum first? (75) 613
  pathogenic, cultivation of anaerobic bacteria and, *in* fluid *media containing* coagulable albumin, (22) 1985
SPIROCHETOSIS, bronchial, (16) 513
SPLANCHNIC nerve, blood-flow through kidney after section of, effect of vagus stimulation on, (8) 1503
  nerve, compensatory phenomena in distribution of blood during stimulation of, (18) 888
SPLANCHNOMEGALY and acromegaly, with hypophysis tumor in male cadaver of thirty-two, (36) 1141
SPLANCHNOPTOSIS: See also Gastro-Enteroptosis; Gastroptosis: Ptosis
SPLANCHNOPTOSIS, medical treatment of, (39) 196
  roentgenoscopy of, (38) 196
  surgical treatment of, (40) 196
  symptomatology, (37) 196
SPLEEN, accessory, acute abdominal pain due to, (32) 2165
  accessory, and hemolymph nodes, experimental production of, 701—ab
  action of Roentgen and radium rays on, (147) 360
  and blood formation, (74) 1606
  and liver stellate cells, relation between, (90) 435
  anemia with enlargement of, splenectomy, (12) 1609
  blood destruction and regeneration and hemolytic jaundice, (52) 428, (71) 890
  blood production and, (97) 204
  enlarged, chronic articular rheumatism with, (91) 1704
  enlarged in chronic malaria, useful prescription in, (27) 2165
  enlargement, diagnosis of diseases associated with, (83) 708
  enlargement, diseases of blood-producing organs with, (60) 2264
  enlargement in infants and children, (16) 704
  enlargement with anemia, (38) 2076
  function of, with reference to hemolysis and hemolytic anemia, (48) 969
  gunshot wound of, patched with omentum, (49) 1238
SPLEEN, influence of, on iron metabolism, (72) 891
  operations on, 17 cases, (57) 1060
  pathology of, (40) 968
  roentgenography of liver, diaphragm and, (108) 204, (37) 1429
  rupture of, (14) 354
  rupture of, splenectomy for, (13) 354, (29) 1793
  supernumerary, (191) 286
  surgery of, (190) 286
SPLENECTOMY and experimental pneumococcus infection, (126) 1706
  for cystic disease, (76) 202
  in anemia with enlargement *of* spleen, (12) 1609
  in Gaucher's disease in boy of 13, (22) 59
  in hemolytic jaundice, (48) 2166, 2256—ab
  in *idiopathic splenomegaly*, (92) 198
  in *pernicious anemia*, (73) 197, (49) 1795, (138) 1882
  in pernicious anemia, nitrogen metabolism before and after, (57) 2161
  in splenic anemia, (126) 1328, (117) 1426, (18) 2165
  in splenic anemia, necropsy 2 years later, 1692—ab
  influence of, (45) 706
  influence of organ extracts and, on homopsonins of blood serum, (45) 706
  malaria infection complicating, (134) 1983
  ruptured spleen, (13) 354, (29) 1793
SPLENIC flexure, ileus from stenosis of, (167) 206
SPLENOHEPATOMEGALY Gaucher, (38) 967, (3) 1787
SPLENOMEGALY, (189) 439
  idiopathic, splenectomy in, (92) 198
  primary, in infant, 132—ab
SPLENOPEXY and right-sided nephropexy simultaneously, (99) 892
SPLINTS, catgut, woven, for open treatment of fractures, (89) 1057
  celluloid, in diseases of nervous system, *773
  folding, for battle-field, (179) 285
  Hacker's, for fracture of upper end of humerus, (118) 198
  medullary bone, in fractures, (148) 276
  silver dento-maxillary, (53) 60
  sliding, of plaster of Paris, for fractured femur, (124) 510
SPONDYLITIS, deforming, rapid course of, (42) 1510
SPONGES at gynecologic laparotomies, control of, (65) 1144
  at laparotomies, improved technic for watching, (150) 206
SPOROTRICHOSIS, *1028, (147) 1608, (131) 1698
  in Mississippi basin, *1153
SPOROTHRIX Schenckii, formation of chlamydospores in, (87) 2162
  skin abscesses due to, (56) 710
SPRAINS, (90) 1327
  Schlatter's, 2 *cases of*, (40) 432
SPRENGEL'S *deformity*, (6) 1604
  plastic transverse abdominal in*cision*, *ultimate* results with, (49) 2077
SPRUE, *395, (7) 703
  hyphomycetes in, (26) 1884
  mouth streptococcal vaccines and *emetin hydrochlorid* hypodermically in, (32) 200
SPUTUM, albumin in, and lung tuberculosis, (110) 518, (43) 1429, (4) 1699, (92) 1881, (10) 1979, (63) 1938
  albumin in, and lymphocytic picture in early recognition of lung tuberculosis, *2283
  examination, diagnosis of tuberculosis by, 3 methods, (29) 1330
  examination in diagnosis of chronic mixed infection with pulmonary tuberculosis, (88) 358
  fats in, (69) 1144
  ferments of, (85) 713
  intracellular position of tubercle bacilli in, of no import for prognosis, (93) 282
  trap for lung *examinations*, (113) 892
  tubercle bacilli in, development and number in connection with clinical course, (95) 282
  tubercle bacilli in, *type of*, (142) 360
SQUINT: See Strabismus
STAINS, artificial organic, action on diastatic hydrolysis of albuminoids, (149) 72
  blood, differentiation of maternal and fetal, (117) 519
  fat, differential, (11) 1058
  fat, for differentiation in preparing museum specimens, (10) *1058*
  for red blood-corpuscles, basic, (165) 438
  for sections, improved technic, (62) 2264
  hematoxylin, Ehrlich's, 502
  negri bodies, technic for, (93) 1145
  urinary deposits, clinical value of, (9) 894
  vital, with acid stains, (54) 1885
  yeasts by Gram's method, (47) 707
STAKE puller and stage driving cap, (66) 1506
STAMMERING child, problem of, (58) 890
STAPHYLOCOCCUS albus, growth of gonococcus and, from urethra in plate culture, (25) 1505
  albus, pneumonia due to, (93) 1514
  erysipelas, (104) 2169
  vaccine, 1295, 1577, 1763
STAPHYLOMA anterior, trefoil or stellate keratectomy for, *839
  cornea, sclerocorneal trephining for, (9) 64
STARCH and infant digestion, *1375
  digesting enzyme in urine, 2295—E
  digestion of milk and, in infant's stomach, (102) 1334
STATE and medical school, *648
  control of tuberculosis hospitals, (63) 509
  control of tuberculosis, literature on, 1048
  duty of, toward early environment of child, (1) 973
  institutions, dual responsibility of physicians connected with, 602—ab
  licensing retired medical officers, 1495
  medical association, defense rights of member under by-laws of, 1498—MI
  medical service vs. a panel system, (8) 894
  medical society, needs and purposes of, (41) 428
  Medical Society of Wisconsin, (138) 1983
  medicine problems of coming 10 years, (10) 1329
  policy in management of tuberculosis, 2068—ab
  requirements of higher preliminary education, 671
  sanatorium, problems of, (56) 2073
  sanatorium, promoting efficiency of, (12) 1135
  society and its medical journal, 250—ab
  university medical schools, 675
STATISTICS, limitations of, 1078—ab
  Vital: See also Mortality Statistics
  vital, 702—ab, (69) 1790
  vital, in Ireland, retrospect of, (5) 354
  vital, necessity for, 776—ab
  vital, neglect of, 1272
  vital, of nation, reform of, (26) 2075
STATUS EPILEPTICUS: See Epilepsy
STATUS LYMPHATICUS, (29) 278, (27) 1980
  and anaphylaxis, in relation to intensified types of diseases in infants and children, (14) 432, (13) 894
  and appendicitis, (8) 1609
  and status hypoplasticus and glands of internal secretion, (70) 2074
  fulminant pneumonia and scrofula, (9) 1609
STATUS thymo-lymphaticus, congenital, 3 cases, (45) 2263
STERCOBILIN in feces, quantitative test for, (117) 2170
STERILITY, dilatation of uterus cervix for dysmenorrhea and, (100) *1889*
  due to stenosis of cervix uteri, *tracheloplasty for*, (6) 1694
  epididymotomy for relief of, *1916
  in male, (18) 195
  in women, (109) 198
STERILIZATION: See also Disinfection
STERILIZATION, artificial termination of pregnancy and, at one operation, (93) 1704
STERILIZATION, feebleminded, (61) 1880
  feebleminded from physiologic standpoint, (104) 970
  formaldehyd, improved technic for, (70) 1702
  hands, (50) 1238
  hands, iodin for, (89) 1063
  law, Iowa and Davis cases, 340—ME
  of apparatus for *anesthesia*, 1596—C
  skin, by iodin, complete, (2) 507
  skin, requirements of ideal, *474
  water and liquid chlorin, 327—E *483
  water by calcium hypochlorite, (20) 1508
  water in the field, (41) 1510
  water with lime, (177) 439
STERILIZER for dressings, *simple*, (15) 2165
  formaldehyd, simple, practical, *483
STERNUM, fracture of, (68) 1144
STETHOSCOPE fork, tuning, method, (43) 1142
  improved, *482, (89) 1989
STEVENS Consumption Cure loses suit against British Medical Association, 958
STILLING'S plates, color test with reference to, (119) 1882
STILL'S DISEASE and arthritis deformans, (42) 352
  contraction of upper and lower limbs after, (13) 278
STITCH ulcers after gastro-enterostomy, 269—ab
STOCK, game and citizens, comparison of appropriation by Illinois for, 1959—E
STOFFEL'S operation for spastic paralysis, (47) 66
STOMACH acidity, blotting paper test for, (82) 358
  acidity in children and infants, influence of milk and meat test diets on, (103) 814
  acidity, tropeolin as indicator for, (109) 1607
  anastomosis of gall-bladder to, 1320—ab, (19) 2070
  anatomy of infant's, noted in course of use of balloon-duodenal catheter, (3) 193
  anoci-association and operations on gall-bladder and, *1335
  borborygmi, (3) 1883
  cancer, acute onset, (10) 58
  cancer, clinical study of 1,000 cases, (2) 1979
  cancer diagnosis from cells found in content of, (66) 434
  cancer, early diagnosis of, (60) 516, (150) 1699
  cancer in young, *1839
  cancer of cardiac end, resection from rear, (126) 71
  cancer, pathology of early, (41) 1789
  cancer, roentgenoscopy, (117) 814
  cancer, roentgenoscopy in early and latent, (60) 1424
  cancer, roentgenoscopy with, misleading, (62) 1331
  cancer, serodiagnosis of, Kelling's, 870—E, 1222—C
  cancer, surgical treatment, (113) 714, (35) 1885
  cancer, with ulcer, secondary, frequency of, (89) 203
  cinematography of duodenum and, 1419—ab
  content, dialysis test for, (53) 433
  content, examination with or without the stomach tube, (81) 357
  diagnosis of diseases of, (75) 806
  diagnosis, problems in, (111) 429
  differential diagnosis of chronic disturbances, (44) 1137
  digestion of milk, influence of fat on, (107) 1243
  Dilatation of: See Gastrectasis
  disease, chronic determination of surgical conditions of, (111) 198
  disease, chronic, differential diagnosis, 192—ab
  disease, chronic irritation of intestines secondary to, (68) 2079
  disease, early recognition of, (95) 892
  disorders of cap and, and lesions of small intestine as observed roentgenologically, (15) 426
  diverticulum from peptic ulcer, (145) 206
  empty, residium found in, *11
  foreign bodies in, *1026
  gunshot and bayonet wounds of, (48) 1605
  gunshot wounds of, (9) 2310

STOMACH, hair-ball of, (134) 1234, (47) 1697
  helminthism, of cattle in Brazil, (187) 286
  hemorrhage, (135) 1983
  hemorrhage, acute, operative treatment, (29) 1141
  hemorrhage, clinical aspects, (3) 1978
  hernia, diaphragmatic, and part of small intestine, (42) 2076
  hour-glass, (160) 72, (43) 1231, (96) 1607
  hour-glass, and duodenum, (45) 509
  hour-glass, operative treatment, (77) 1241
  hour-glass, torsion of, (36) 2263
  hydrochloric acid formation in foveolae and on surface of gastric mucous membrane, 505—ab
  hydrogen ions, concentration of, in contents of infant's (122) 436
  motility, chlorophyll test of, (42) 2072
  motility, physiology of, (70) 1137
  motor functioning of, stimulated by duodenal ulcer, (82) 68
  myomas of esophagus and cardiac end of, (109) 70
  needle protruding through wall of, (83) 61
  neuroses, (94) 2081
  neuroses from organic abdominal disease, (9) 58
  neuroses, investigation of, with vago-excitative characteristics, (125) 971
  operations on, (51) 1051, (47) 2077
  operations on bile tract and, relation of liver to, (73) 509
  pancreas disturbance secondary to disease of bile tract or, (109) 204
  pathology of, experimental, (30) 2072
  pathology, tardy equivalents in, (35) 810
  perforation, acute, with spontaneous recovery, (64) 1982
  physiology of, (4) 2258
  position of normal, 1499—ab
  resection, technic for, (97) 436, (78) 1687
  Roentgen rays and operations on, (23) 1605
  roentgenography of intestines and, (75) 1507
  roentgenoscopy of, (97) 518, (104) 980
  roentgenoscopy of, importance of recess shadow in, (58) 1238
  roentgenoscopy of, in surgical disease of, (102) 282
  roentgenoscopy of intestines and, (28) 809
  roentgenoscopy of normal, (151) 276
  sarcoma of, (5) 194
  sarcoma of small intestine and, (157) 361
  sarcoma, primary, (186) 286
  secretion, *2038
  secretion, acidity of, in man, 580—E
  secretion, alleged modifications of, 1534—E
  secretion, fluctuations in, under emotion, (53) 1987
  secretion, human, solubility of lead sulphid ores and lead sulphid in, (92) 970
  secretion in infants, effect of sugars on, (116) 1608, (15) 1979
  surgery, (49) 1231
  surgical lesions of cap and, negative diagnosis of, 1419—ab
  syphilis and changes in, (213) 362
  test, new, (11) 194
  test of functional capacity of, (76) 357
  tetanus originating in, (83) 2168
  trypsin absent in, in jaundice, (49) 274
  tube, (127) 971
  ulcer, acute, effect of anemia on pathological processes in, (39) 1700
  ulcer and cancer, (59) 1701
  ulcer and cancer, digestion leukocytosis in differentiation of, (77) 1032
  ulcer and cancer, early differentiation of, (59) 1240
  ulcer, cautery in, (155) 1609
  ulcer, direct intragastric method of treating, (5) 199
STOMACH, ulcer, etiology of, (49) 1885, (15) 2075
  ulcer, experimental, chronic, *380
  ulcer, familial occurrence of, (60) 1701
  ulcer, gastrostomy in, (10) 808
  ulcer, Gluzinski's test in, (25) 350
  ulcer, hard, when to operate for, (237) 363
  ulcer in Bavaria, (64) 1701
  ulcer in children before puberty, (142) 1608
  ulcer of duodenum and, (27, 28) 967, 1786—ab
  ulcer of duodenum and, chronic, surgery of, (121) 1882
  ulcer of duodenum and, diagnosis, (29) 967, (71) 1703, (108) 1705
  ulcer of duodenum and, diagnosis and symptomatology, (42) 1697
  ulcer of duodenum and, diagnosis and treatment, (89) 429, (56) 1987
  ulcer of duodenum and, difference in morphology of blood in chronic appendicitis and in, (9) 1604
  ulcer of duodenum and, end-results of, *1836
  ulcer of duodenum and, etiology of, (36) 133[illegible]
  ulcer of duodenum and, intestine stasis and, (113) 1983
  ulcer of duodenum and, roentgenoscopy of, (40) 1696
  ulcer of duodenum and, ruptured, (17) 2070
  ulcer of duodenum and, surgery of, 793, (11) 808, *1184, (120) 1882
  ulcer of duodenum and, treatment, (31) 1231
  ulcer of duodenum or, necessity of combating hypersecretion with, (51) 1511
  ulcer, of lesser curvature, (65) 606
  ulcer, operative treatment of, (114) 436, (103) 1138, (32) 1231
  ulcer, perforating, treatment, (41) 1422
  ulcer, pylorus exclusion by suture for duodenal and, (42) 612
  ulcer, pylorus in etiology and treatment of, (51) 1325
  ulcer remote from pylorus, (89) 614
  ulcer, resection of, (71) 711
  ulcer, residium in stomach later than 6 hours with, (68) 812
  ulcer, result of erosion, from trypsin, (132) 205
  ulcer, roentgenoscopy in, (147) 276, (18) 350
  ulcer, treatment, (21) 508
  ulcer with hour-glass stomach, (64) 1332
STOMATITIS, gonorrheal, (99) 1607
  tropical infectious, (36) 1789
STOMATOLOGY, section on, as factor in evolution of dental and medical science, *2106
  section on, needs, duties and opportunities, *2104
STOOL: See Feces
STRABISMUS, (99) 62, (117) 1882
  hereditary malformation of chin and nose with exophthalmos and, (19) 1141
STREAM, destruction of mosquito larva in swamps, ponds, wells, pools and beds of, (15) 709
  pollution, (16-27) 1788
STREET cleaning, municipal management of, (6) 1420
  cleaning, municipal vs. contract, in Washington, D. C., (14) 2159
  cleaning, progress in methods and character of (7) 1420
STREPTOCOCCEMIA, mastoiditis, latent, complicated by cerebral symptoms, blindness and, (27) 1420
STREPTOCOCCUS, *arthritis* due to, (146) 277
  arthritis due to, action of vaccine, and concentrated antistreptococcus serum in, (40) 805
  arthritis, due to, surgical treatment of, (41) 703
  bacteriology of cholecystitis and production by injection of, *1835
  bovine mastitis and human, (33) 805
  classification of, (53) 706
STREPTOCOCCUS, classification of pathogenic, by fermentation reactions, (28) 804
  fermentative reaction of, experiments on variability of, (42) 804
  Gram-negative, pathogenic for guinea-pigs, (89) 708
  hemolysin production by, (54) 707
  hemolysis of, a pregnancy reaction, (180) 286
  in vitreous, in metastatic choroiditis, (87) 509
  kidney changes in rabbits inoculated with, (36) 1526
  longevity of, and errors in isolation and differentiation of, (24) 1504
  method for making carbohydrate serum broth of constant composition for use in study of, (39) 804
  of bovine and human origin, growth and viability of, in milk, (35) 1506
  peritonitis in children, (39) 514
  sore throat, epidemic of, in Jacksonville, Ill., traced to milk of cows with streptococcus mastitis, (26) 2071
  vaccine, 1296, 1577, 1953
  viridans infection, serodiagnosis of, polyvalent antigen for, (55) 429
STREPTOTHRIX, acid-fast, (8) 603
  cladothrix and actinomyces, differentiation of, (68) 1511
  foersteri, mold fungi, in gastric contents, *164
  in lumbar puncture fluid, (117) 359
STREPTOTRICHOSIS, human, differentiation from tuberculosis, (14) 604
STRIA vascularis of cochlea, embryologicanatomic study of, (80) 1145
STRONGYLIDAE in Brazil, (75) 1614
STROPHANTHIN, intravenous use of, with regular and irregular *pulse rhythms*, (8) 1323
  temperature and action of, on mammalian heart, (77) 1425
STRUCTURE, anatomic, and function, *521
STRUMECTOMY, ligation of inferior thyroid artery for, (119) 1809
STRYCHNIN and caffein, effect of, on blood-pressure, *311
  colloidal compound of, and its pharmacology, *1933
STUDENTS, alien, exclusion of, from German universities, 1491
  in army, situation of, 1967
  medical, are overworked, (111) 2163
  medical, distribution by states, 676
  medical, fewer colleges, graduates and, 691—E
  medical, in Vienna, restriction *of* number of, 437
  surgeon not liable for death when administration of anesthetic was by medical, 345—Ml
STYGEROMIA maculosa in Madras, (10) 1984
STYPSTICK applicators, 165
SUBARACHNOID hemorrhage, spontaneous, *1362
  spaces, pathways of escape from, with reference to arachnoid villi, (44) 1506
SUBCLAVIAN artery, laceration of, and severing of brachial plexus, (133) 1983
SUBMAXILLARY gland, foreign body in, *403
SUGAR and lactic acid, behavior *of*, in blood, (72) 970
  and lactic acid content of blood, influence of muscular exercise on, (94) 203
  cane, harmful effect of certain products of, *481
  cholesterin and uric acid in blood, quantitative estimation of, (70) 509
  disaccharid, parenteral utilization of, (77) 970
  gastric secretions in infants and effects of, (116) 1608, (15) 1979
  heart disease, parenteral administration of, as stimulant, 245—E
  heart muscle nourished by injection of solution of, (118) 282
  history of, in animal body, (15) 1427
  in athrepsia and in incessant vomiting in infants, (54) 434
SUGAR in blood, absolute and percentile amounts of, 1036—E
  in blood and dietary treatment of diabetes, 688—E
  in blood and glycogen content of liver, influence of thyreoparathyroidectomy on, (64) 61
  in blood, Bang's micromethod for determining, compared with Bertrand's method, (16) 605
  in blood, colorimetric determination of, (42) 1142
  in blood, condition of, (78) 1425
  in blood, determination of, (71) 1697
  in blood in cancer, 192—ab
  in blood, microchemical test for, *1667
  in blood, new test for, (36) 355
  in blood, normal, in Addison's disease, (73) 977
  in blood, not an index to rapidity of absorption of, (64) 1988
  in blood of dog, normal level of, (72) 1697
  in blood, test for lactic-acid and, (35) 65
  in blood under common laboratory conditions, (9) 272
  in urine, test for, (127) 520, (52) 1430
  in wound dressing, (165) 361
  oxidation of, in pancreatic diabetes, (87) 713
  solution and coagulation of blood, 1226—ab
  solution by proctoclysis, postoperative, (95) 1233
  test, alimentary, of liver functioning, (121) 71
  utilization by diabetic *organs*, 2138—E
SUGGESTION, peril of, 1199—ab
  practicing without certificate, 1318—Ml
  therapeutic use of, (33) 432
  treatment by, dangers of double *meaning* in, (44) 1885
  treatment by, plea for more systematic employment of, (32) 432
SUICIDE and newspaper publicity, 600—ab
  emotion as factor in etiology of criminality, insanity, mortality and, (45) 1880
SULLIVAN'S Sure Solvent, 1409—P
SULPHONAL, fatal hematoporphyrinuria after 10 grams of, in 9 days, (74) 978
SULPHUR and nitrogen metabolism in cretin, (50) 1423
  colloidal, in therapeutics, (61) 202
  in urine, volumetric test for estimation of total, (47) 606
  metabolism of calcium, magnesium, phosphorus, nitrogen and, in acromegaly, (35) 1135
SUN, tanning under exposure to, mechanism of, (38) 611
SUNLIGHT and mountain climate, for tuberculosis of hand, (40) 977
  and sea air in surgical tuberculosis, (57) 710, (88) 1969
  germicidal action of, on bacteria, (5) 2159
  in cities, (131) 276
  in surgical tuberculosis, (57) 202, (40) 356
  in surgical tuberculosis, operative *transformation* of deep into superficial lesions as aid to, (86) 281
  in *tuberculosis* of bone and joint, 348—ab
  stimulation of gaseous metabolism during treatment by direct, (120) 1706
  therapy, (121) 1244
  therapy *at seashore*, (64) 280
  therapy of larynx, (51) 66
SUNSTROKE, *care* of wounded and after, (53) 1510
  treatment of, and heat prostration, (111) 1327
SUPRARENAL CAPSULE: See Adrenal
SUPRARENAL SUBSTANCE: See Epinephrin
SURGEONS, American ambulance, daring, 2239
  American, appreciated, 1774
  American, commissioned in Russian army, 1682
  and physicians, (106) 198
  army, and civilian, relation between, (66) 806

SURGEONS, army, casualties among, 2240
  barber, company, (24) 2075
  consulting, at front, (89) 1512
  deficiency of, in royal navy, 494
  division in naval *militia*, (96) 429
  good, making of, 1344—ab
  ideal, 505—ab
  in railroad company, statements made to and by, 268—Ml
  legal responsibilities of, in cases of fracture, (133) 63
  malpractice liability of, employed by company, 425—Ml
  no more physicians and, needed in war zone, 1589
  not liable for death when administration *of anesthetic was by* medical student, 345—Ml
  of future, (6) 807
  on battle-field, (41) 1612, (70) 2167
  rights of, to operate for condition other than that diagnosed, 495
  standardization of, *1433
  useful, (66) 1137
  what is required of physicians and, 1226—Ml
SURGERY, advances in science and bearing on medicine and, (28) 2165
  and malaria, 1317—ab
  and medicine, English, in 14th century, (29) 610
  authority in, (98) 2163
  biliary, (57) 1506
  emergency, in country practice, 58—ab
  fatal errors in, (40) 1789
  fees in, 262—C
  for handicapped patient, (62) 1606
  general, application of, orthopedic principles to, (150) 972
  German, (77) 1507
  heart, lung and trachea, experimental, *1338
  helps, (93) 1056
  in base hospitals, (45) 2077
  in cottage, plea for, by country physician, (15) 199
  in field, (97) 359, (44) 1701, (89) 1704, (114) 1705, (45, 46) 1885, (69) 1988, (54) 2264
  in field, courses of lectures on, 1682
  in home zone, *(90) 1704*
  in Russo-Japanese war, (40) 1510
  Italian, contemporary, (12) 2075
  knot, ready-made, 885—ab
  military, (124) 892, (21) 967, (50) 1330, 1684, 1964
  military, at front, (77) 1331, (68) 1430
  military, dentistry *protheses in*, (45) 1986
  military, experiences of latest, 2242
  military, general principles for, (47) 1985
  military, Hughes' electromagnetic balance in, 2055
  military, in Balkans, (98) 358, 405—E
  military, in early weeks of war, *2194
  military, in Sweden in 18th century, (94) 1616
  military, old works on, (33) 1509
  military, practical suggestions for, (62) 1240
  military, present day modifications of, 1492
  military, work of, 2243
  motor, (100) 1881
  neurologic, field of, (144) 431
  service in *hospitals*, *1437
  standardization of, *763
  surprises in, (95) 1982
  teaching, *645, (51) 889
  technic, (79) 607
  underestimation of internal medicine by some who do, (33) 1696
  vaccines and immunity in relation to, (92) 62
SUSSMANN gastroscope, modern gastroscopy with, (52) 1325
SUTURE clamp to facilitate anastomosis *of hollow viscera*, (153) 276
  of heart, (22) 1610
  of wound, antiseptic powder dusting before, (95) 813
  pedicle, new, (21) 1236
SWAMPS, destruction of mosquito larva in stream beds, ponds, wells, pools and, (15) 709
SWEAT baths, influence of, on nonprotein nitrogen content of blood in nephritis, *944
SWEETS, effect of, *481
SWIFT-ELLIS Treatment of Syphilis: See Salvarsanized Serum
SWIMMING pool, acute contagious conjunctivitis originating in public, (70) 707
  pool, sanitation of, (36) 804, (11) 2159
SWINDLER, Donald McCormick, soliciting subscriptions to American Bureau of Medical Research, 1041
  subscription, at work, 589
SWISS sulphur mineral water in eczema, acne and for surgical bone and joint disease, (34) 1141
SWITZERLAND appeals for aid, 957
  jubilee of public health service in, 1309
SYMPATHY, *tonic effect of, with others*, 327—E
SYMPHYSIS pubis, rupture of, during labor, (38) 1506
SYMPTOMS, translation of, into their mechanism, (5) 1878
SYPHILIS, 1300—E
  aboard ship, (126) 1983
  acquired, liver in, (98) 198
  advancement in studies of, (62) 890
  antimony in, (10) 1700
  aortitis due to, pathogenesis and symptomatology of, (1) 1053
  arthritis due to, (148) 72
  bladder, (39) 810
  cancer and tuberculosis in same patient, *1819
  cerebral, in secondary stage, (68) 1137
  cerebrospinal, (47) 2073
  cerebrospinal, cerebrospinal fluid cell counts in untreated, (54) 1981
  cerebrospinal fluid and nervous system in secondary, (31) 1135
  cerebrospinal fluid examinations in cured, *550
  cerebrospinal fluid findings and general nervous symptoms early in, (198) 362
  cerebrospinal, intradural injections of mercurialized serum in, *2182
  cerebrospinal, intrameningeal treatment of tabes and, (44) 274
  cerebrospinal, salvarsanized serum *in tabes dorsalis, general paralysis* and, (31) 427, 1878—ab
  cholesterin antigens in Wassermann reaction and quantitative testing of sera of, (13) 1323
  city control, (19) 1135
  coagulo-reaction in, (36) 1060, (75) 1241, (75) 2080
  congenital, and syphilitic heredity, (20) 803
  congenital, diagnosis in infants and children, (91) 1327
  congenital, laboratory diagnosis in early, (4) 1979
  crime due to head injury and, (28) 427
  cutaneous, (106) 275
  diagnosis and treatment, (105) 1234
  diagnostic methods, (115) 1327
  ear, (26) 273
  esophagus, (3) 967
  experimental, in rabbit, (160) 285, (51) 1885
  eye, in hereditary syphilis, (14) 1135
  eye, therapeutics of, (15) 967
  feeblemindedness and, (82) 1881
  fetal, action on, from salvarsan given mother, *(79)* 1332
  heart, (6) 1978
  heart in, treatment of, *1456
  hereditary, and chronic hydrocephalus, *(92) 1888*
  hereditary, as social problem, (2) 1787
  hereditary, clinical diagnosis, (45) *1510*
  hereditary, exophthalmic goiter clinical manifestation of, *1951
  hereditary, foci of, in *province of* Rome, (102) 1889
  hereditary, inadequate *treatment*, (79) 1512
  hereditary, late, diagnosis and treatment, (4) 1502
  hereditary, late manifestations in, with reference to arterial disease, *1558
  hereditary, late type of, treatment, 132—ab
  hereditary, luetin reaction in, (46) 896, (106) 1243
  hereditary, review of, (4) 426
  hereditary, salvarsan and neosalvarsan in, (2) 807
SYPHILIS in American negro, *463
  in Massachusetts, (13) 1135
  in negro canal laborers, (127) 1698
  in New Zealand and South Sea Islands, 334
  internal medicine and, (18) 1135
  intramuscular injection of drugs in, (61) 352
  kidneys, (20) 605
  knowledge pertaining to, (18) 605
  lesions of parasyphilis and, (2) 2164
  lip, primary, from pencil held between lips, (63) 613
  liver, imitating cirrhosis, (1) 967
  luetin *reaction in*, (135) 205, (21) 803, (47) 1613
  luetin test, in children, inconveniences of, (37) 356
  lung, (17) 1135
  lungs, simulating lung tuberculosis, (57) 1137
  lupus originating from, (38) 1429
  meninges, salvarsan in, (57) 67
  mercury inhalation in, Engelbreth's method, (201) 440
  mercury, intravenous injection *of*, *563
  multiple sclerosis due to, diagnosed clinically in spite of negative laboratory tests, (136) 1234
  neosalvarsan in keratitis due to, (34) 810
  nervous disorders and, (77) 1982
  nervous manifestations of, intraspinous injection of salvarsan in, (1) 58
  nervous system, central, intraspinal injection of salvarsanized serum for, *1936
  nervous system, diagnosis and treatment, (47) 969
  nervous system, in light of Wassermann reaction and treatment *with neosalvarsan*, (1) 2164
  nervous system, laboratory diagnosis of, (4) 58
  nervous system, neosalvarsan injections, intradural technic *of*, *137
  nervous system, neosalvarsan, intrameningeal injections, *2287
  nervous system, neosalvarsanized serum in, (54) 1143
  nervous system, ocular symptoms of, (14) 967
  nervous system, paralysis agitans syndrome with, (25) 1054
  nervous system, recurrences of, under salvarsan, (72) 68
  nervous system, salvarsanized serum in, (82) 429, (59) 606
  nervous system, treatment of, *552, (5) 1978, (78) 1982
  nose, (51) 969
  paralysis and aneurysm due to, (51) 1430
  parenchymatous, intracranial medication, (24) 64
  pathology of, *466
  phlebitis due to, early, 2 cases, (108) 2169
  pregnancy complicated by, (96) 608
  primary lesion, and soft chancre, differentiation, (142) 205
  prophylaxis and treatment, (30) 59
  quinin in, (143) 437
  rachicentesis in, *550
  relation of symptoms to subsequent tabes dorsalis or general paralysis, statistical study, *459
  roentgenotherapy of skeletal manifestations, (10) 1230
  salvarsan and, (78) 1326, (43) 1510, (88) 1881
  salvarsan and mercury in, (90) 69, (265) 364, (57) 1238
  salvarsan and neosalvarsan in, (92) 2074
  salvarsan in, abortive treatment of, (84) 68
  salvarsan in, in Dr. Steeven's Hospital, Dublin, (13) 1508
  salvarsan in malignant, (103) 1888
  salvarsan in, results judged by Wassermann reaction using cholesterin fortified antigen, (62) 1137
  salvarsan in, *7 months' experience with*, *2277
  salvarsan in surgical, (123) 1890
  salvarsan, intravenous injections, (56) 60
  sepsis in, *recognition and nonrecognition of*, (14) 1058
SYPHILIS, *serodiagnosis*, Abderhalden, (182) 361, (32) 1135
  serodiagnosis, Landau's color test for, 1317—ab, (49) 1986
  sero-enzyme test *for*, *559, (41) 1055
  skin lesions from tuberculosis or inherited, (114) *714*
  spine, symptomatology and neural complications, (2) 967
  spirochaeta pallida isolated from blood in, *142
  stomach changes in secondary *phase of, (213)* 362
  Sudhoff on, 1300—E
  tertiary, latent, in diseases of nose and throat, *1563
  tests for latent and treated, (72) 61
  tobacco and alcohol as factors in intermittent claudication, (70) 280
  tonsil, (16) 1135
  treatment, abortive, (101) 615, (64) 1886
  treatment and systematic recording, (127) 1983
  treatment, modern, (71) 1137, (114) 1698, (8) 1699, (139) *1983, 2158—ab
  treatment, modern, and central nervous system from biologic *point of view*, 1787—ab
  treatment, transformation of, (62) *1510*
  vascular and cardiac, (15) 1135
  Wassermann, cobra and globulin reactions in, (79) 1326
  Wassermann reaction for, in Harvard Neuropathologic Testing Laboratory, (19) 195
  Wassermann reaction in controlling treatment of, (138) 893, (96) 1514
  yaws and, unity of, (120) 1983
SYPHILOPHOBIA, (75) 1137
SYRINGE for ear, nose and throat, (64) 197
  graduated, standardization of, (81) 1241
SYRINGOMYELIA, case of Morván's type, (90) 1607
SYSTOLIC discharge and pericardal volume, (26) 888
  high, relation of, to diastolic pressure, (33) 967

SOCIETIES

Acad.—Academy.
Am.—American.
A.—Association.
Conf.—Conference.
Cong.—Congress.
Conv.—Convention.
Internat.—International.
M.—Medical, Medicine.
Phar.—Pharmaceutical.
S.—Society.
Surg.—Surgical, Surgery, Surgeons.
Am. Acad. of M., 174
Am. A. for the Study and Prevention of Infant *Mortality*, 331, 1124, 1964
Am. A. of Anesthetists, 41, 695
Am. A. of M. Examiners, 42
Am. A. of M. Milk Commissioners, 42
Am. A. of Obstetricians and Gynecologists, 1215, 1319, 1418
Am. A. of Railway Surg., *1589*
Am. A. for the Study of the Feeble Minded, 41
Am. Climatological A., 174, 346
Am. Climatological and Clinical A., 175
Am. Electrotherapeutic A., 695, 1123
Am. Hospital A., 695, 956
Am. Life Conv. M. Section, 1123, 1589, 1963
Am. Pediatric S., 55
Am. Roentgen Ray S., 1227, 1321, 1419
Am. Therapeutic S., 269
Am. Urological A., 42
Berlin Surg. S., 879
British M. A., 494, 878, 958
Canadian M. Protective A., *1215*
Colo. State M. S., 874, 1133, 1212, 1229
Congress of Internes *from Cities* which have Medical Colleges, Lyons, 176
Conn. State M. S., 190, 268, 1487
Del. State M. S., 1487, 1585, *1693*
Dominion M. Council, 43
French Conf. on Public and Private Assistance, 415
French, M.-Legal S., 44

German Central Committee for the Campaign Against Tuberculosis, 46
Idaho State M. A., 1488
Ind. State M. A., 491, 789, 1039, 1212, 1499, 1602
Ky. State M. A., 1401, 1416, 1501
Mass. M. S., 39, 250
Mich. State M. S., 875, 1040, 1679
Military Surg. A. of U. S., 1123, 1214, 1309
Minn. State M. A., 1122, 1401, 1600, 1692
Miss. Valley M. A., 1309, 1681, 1785, 1877
Missouri Valley M. S., 877, 1215
Mont. State M. A., 329, 411
National A. for the Prevention of [illegible] 414
Nat. [illegible] Education [illegible] 42
New [illegible] 2256
N. J. M. S., [illegible]
N. Mex. M. S., 1488
Nev. State M. A., 1587
N. Y. Acad. of M., 191, 1415, 1962
N. Y. Acad. of M. Pediatric Section, 2256
N. Y. Neurological S., 1976
N. C. State M. S., 40
Ohio Valley M. A., 589, 1308, 1774
Paris Acad. of M., 177, 415, 592, 593, 1043, 1684, 2055
Paris Acad. of Sciences, 1044, 1491, 2055
Paris Surg. S., 495, 1868, 1967
Pa. State M. S., 1214, 1308
Philadelphia Coll. of Phys., 56, 2257
Philadelphia Co M. S., 1876
Philadelphia Pediatric S., 2256
S. Dak. State M. A., 57, 192
Southern M. A., *331, 1865, 1964*, 2068, 2158
Southwest M. A., 1681, 1963
Surg. of North Am. Clinical Cong., 254
Utah State M. A., 1403
Va. M. S., 1774, 1977, 2069
Vt. State M. S., 1489
Wash. State M. A., 1308
Wis. State M. S., 1403

T

TABES DORSALIS and acromegaly, (125) 2170
  arthritis and, (68) 1062
  constitutional predisposition to, (154) 284
  determinants of, (87) 197
  diagnosis, early, importance of, (85) 1881
  electric treatment of, (65) 1510
  exophthalmic goiter and, occurrence and interrelation of, (17) 195
  gastric crises and vagotomy, (85) 614
  histologic changes in, (76) 1507
  infantile and juvenile, (16) 2310
  intrameningeal treatment of cerebrospinal syphilis and, (44) 274
  intraspinous treatment of, (49) 889
  ocular paralysis due to, pathology of, 2257—ab
  optic nerve atrophy due to, intraspinal injections of salvarsanized serum in, *866
  relation of symptoms of syphilis to general paralysis or subsequent, statistical study, *459
  rhizotomy for relief of gastric crises in, (8) 2075
  salvarsan in, favorable influence, (94) 1242
  salvarsan, intraspinal injections in general paralysis and, articles on, 1781
  salvarsanized serum in general paralysis, cerebrospinal syphilis and, *866, 1878—ab
  sensory disturbances of, diagnostic measures in, (135) 2170
  treatment of specific paralysis and, 2158—ab
TACHYCARDIA, paroxysmal, (88) 1145, (52) 1605
  paroxysmal, in child 3 years old, (1) 277
  paroxysmal, syncopal form of, (59) 356
  with parenchymatous goiter, (5) 512
TACHYSYSTOLE of auricles and irregular pulse, (62) 1886, (76) 2079
TALCUM POWDER, use of, 1129
TALIPES, (4) 272
  calcaneus, treatment of, (72) 1060
  classification of, on anatomic basis and treatment adapted to each form, (103) 980
  congenital, and country physician, (95) 1425
  forcible correction of, over padded segment of broom-stick, in children, (105) 615
  planus and tuberculosis of foot, relations between, (71) 613
  planus, induced hardening of ligaments cures, (84) 813
  treatment of, by general practitioner, (52) 1330
TALUS, dislocation-fracture of, (74) 1060
  operative treatment of dislocation of, (26) 1141
TANGENT curtain, (34) 2072
TANNING in sun, mechanism of, (38) 611
TARSAL cartilage, excision of conjunctiva and, in old trachoma, (70) 353
TARSALGIA, (113) 510
TARTAR emetic, in superficial leishmaniosis, 1051—ab
TARTRATE nephritis, acute and chronic, elimination of phenolsulphonephthalein in, (62) 1232
TASTE, sense of, (96) 1334
TEACHERS in hygiene, training of, (19) 1793
  medical, why not exchange of, 1485—E
  of chemistry, anatomy, etc., should receive same salary as professors of clinical medicine, 2248—C
TEACHING fellowships, *3, 51
  medical, (79) 61
  medical, socialization of medicine and, (70) 606
  nervous and mental diseases, adequate, *1707
  of general medicine, (109) 62
TEETH, alloy filling of, cause of chronic copper poisoning, (80) 812
  calcium content of bones and, from normal and thymectomized albino rats, (46) 1789
  care of mouth and, 2290—T
  caries of, and internal secretion, (4) 354
  detergents, 50
  eruption of permanent teeth of American, German-American and Filipino children, (3) 2159
  infection of, factor in nervous diseases, *2027
  observation of mouth and, from life insurance standpoint, (52) 1790
  roentgenogram of jaws to determine conditions in, *2024
  root, diseased, infection of nasal cavity from, *549
  temporary, effect of losing, 698
TEETHING, (55) 434
TELECARDIOGRAPHY, (61) 516
TELLURIUM, biologic action of benzol, selenium, thorium and, (38) 2312
TEMPERATURE and action of strophanthin on mammalian heart, (77) 1425
  and rate of heart beat in amblystoma embryos, (12) 1503
  body, and pulse rate in man after muscular exercise, (13) 1503
  body, in children, clinical aspects, (2) 354
  centers, respiratory exchange controlled by heating and cooling, (75) 1425
  effect of, on action of thrombin and antithrombin, (1) 2258
  in incipient tuberculosis, (149) 972
  in tuberculosis, prolonged subnormal, 346—ab
  standard technic for taking, (69) 1331
  typhoid serums and, 340
  wet-bulb, poor health of Australian women due to, 601
TEMPORAL bone, fracture of left, (80) 708
TEMPOROSPHENOIDAL abscess and chronic otitis media, (30) 1420
  abscess secondary to chronic suppurative otitis media, operation, radiograph findings, (31) 706
TENDON, operations on, (98) 1514
  peroneus, dislocation of, (91) 517
  psoas parvus, contractured (125) 892
  reflexes in infants and children, physiology of, (66) 1988
  rupture of, of long head of biceps, (107) 282
  sheaths, phlegmons in joint and, phenol and camphor in local treatment of, (89) 2080
  suture of nerves and, in field, (73) 1988
  transplantation after acute anterior poliomyelitis, 1229—ab
TENNESSEE Journal on Wine of Cardui, 1313—P
  medical news, 41, 694, 956, 1214, 1588
  reciprocity report, 2252
TENOSYNOVITIS, arthritis and gonorrhea, (85) 892
TENT, proposed methods of striking and pitching pyramidal, small pyramidal and ward, (64) 806
TERATOMA of pharnyx, (106) 1698
  testis with tubercle bacilli in urine, (78) 2074
TEST: See also Reaction
TEST, acetone, aceto-acetic acid and b-oxybutyric acid in urine, (43) 605
  albumin in urine, (44) 606, (105) 1425
  alcohol, 1410
  Bass-Watkins, for typhoid, 883
  blotting-paper, for stomach acidity, (82) 358
  breakfasts, advantages of two, (190) 439
  butyric acid, of Noguchi, (34) 428, *597*
  carbohydrate tolerance, non-specificity of, (24) 1695
  chlorophyll, of gastric motility, (42) 2072
  color, for uric acid in urine, (117) 714
  color sense, self-recording device for, *1030
  color, with dialysis serodiagnosis, (84) 517
  color, with reference to Stilling's plates, (119) 1882
  creatin in urine, (36) 605
  diacetic acid in urine and of degree of acidosis in diabetics, (124) 520
  dialysis, of stomach content, (53) 433
  diuresis, with abnormally high blood-pressure, (39) 895
  functional, lacrimal apparatus, (88) 1798
  glucose in urine, clinical, to estimate percentage of, (7) 431
  glucose in urine in diabetes, (11) 1139
  Gluzinski's, in gastric ulcer, (25) 350
  hearing, practical differential, (75) 61
  incubation, in examination of water, (12) 1329
  intelligence, variability in results, *319
  iodin and lactose in various types of nephritis, comparative elimination of, (67) 711
  kidney function, (117) 282
  kidney function, in nephritis, (128) 616, (7) 1323
  kidney function, in reduction of prostatectomy mortality, (48) 1055, *1909
  kidney function, modern, (123) 71, (21) 605
  kidney function, value of, to surgeon, and limitations of these tests, (109) 892
  lead, practical, 1495
  liver, functional, (100) 1607
  liver, functional capacity and pathology of, (70) 1240
  meal and bismuth roentgenography, technic of, (40) 1506
  mental and medical physio-psychologic, to determine exceptional development in children, (71) 1880
  mercury, for tuberculous nature of effusion, (111) 814
  morphin and its salts, (23) 513
  nucleinic acid, in blood diseases, (129) 360
  occult blood in feces, dry, (57) 1987
  pancreas function, (106) 519
  phenolphthalein, Boas', for occult blood, (79) 1241
  phenolphthalein, for occult blood, criticism, (70) 613
  phenolphthalein, for occult blood in feces, (91) 1241
  phenolsulphonephthalein, disadvantages of, in surgical kidney disease, (56) 976
  phenolsulphonephthalein excretion in urine and *non-protein nitrogent* content of blood, (26) 1695
  phenolsulphhonephthalein, in *acute* and chronic tartrate nephritis, (62) 1232
  phenolsulphonephthalein, of kidney functioning, (56) 976, (105) 1138, (67) 1430
  phthalein and urea excretion in nephritis, (43) 811
  potassium iodid, for carbon monoxid in blood, (129) 1390
  potassium iodid, for differentiation *of cancer*, (84) 1145
  pregnancy, conjunctival and skin, *no practical value to*, (83) 517
  purity of water, 1048
  Ross Jones, 597
  sand, for bile pigment and hemoglobin in urine, (58) 1613
  sero-enzyme, for syphilis, *559
  sight, of board of trade, results, (3) 1139
  stercobilin in feces, (117) 2170
  stomach functioning, (76) 357
  stomach, new, (11) 194
  sugar, alimentary, of liver functioning, (121) 71
  sugar and lactic-acid content of blood, (35) 65
  sugar in blood in small quantity, new, (36) 355
  sugar in blood, microchemical *1667
  sugar in urine, (127) 520
  sulphur in urine, volumetric, (47) 606
  syphilis, latent and treated, (72) 61
  urinary diastase, and Loewi's reaction in pancreatic lesions, (7) 199
  urinary diastase, with ruptured duodenum, (13) 1609
  urine, affected by hexamethylenamin, (86) 812
  urine, for cancer unreliable, (73) 281
  urochromogen and diazo, in prognosis of tuberculosis, *1294
  vision, international standard for, and standardizing other visual tests, *718
TESTICLE, cancer of, (30) 611
  extirpation of, and vasomotor irritability, (16) 1605
  functioning not impaired by ligation of vas deferens in dogs, (149) 438
  heteroplastic grafting of, (102) 1607
  imperfectly descended, treatment of, (9) 427
  implantation of ovary and, (101) 1607, (125) 1698, (87) 1791, (105) 1881
  sympathetic nervous system and, 1860—E
  teratoma, with tubercle bacilli in urine, (78) 2074
  transplantation from dead to living body, (104) 354
  tumor, malignant, of retained, (92) 1056
  tumors, orchidectomy for, *2009
  undescended, operation for, (27) 65
TESTIMONY, Expert: See Expert Testimony
TETANUS, (65) 1796, (68) 2168, (10) 2310
  Abbott's treatment of scoliosis followed by fatal, 44, (52) 201
  among wounded, (31) 1794, (43) 1986
  anaphylaxis from antitetanus serum, danger of, (33) 2312
  antitetanic serum in, (34) 1505, (6) 1700
  antitetanus serum and large doses of chloral in, (35) 2312
  antitoxin for allied troops, 1490
  antitoxin in prophylaxis, (140) 72
  antitoxin, intraspinal injection of, experiments on curative value of, *235
  articles on, 1971

TETANUS, chloral in large doses in, 2055, (19) 2262
  cramp of respiratory apparatus, treatment by cutting both phrenic nerves, (66) 1796
  gastric, tardy, (83) 2168
  history of, (9) 1329
  magnesium sulphate in, (95) 614, (57) 2078, (30) 2263
  magnesium sulphate, intraspinal in, (34) 2312
  phenol injections in, recovery, (58) 1005
  post-vaccination and vaccine virus, 1032—E
  prevention and treatment, (50) 1886
  prophylaxis of, in army, (67) 1886
  symptoms and treatment, (55) 2167
  symptoms of, in pregnancy, (165) 285
  toxin, effect of gentian-violet on, (94) 2163
  traumatic, (33) 1985
  traumatic, intravenous antitoxin in, (54) 1613
  traumatic, serous transudate from abdomen in, (79) 2079
  treatment of, (29) 2263
TETANY, (76) 61, (78) 614
  after thyropara-thyroidectomy, influence of subcutaneous injections of dextrose and calcium lactate on blood-sugar content and, (70) 1232
  laryngeal polypi, recurring with, (23) 273
  postoperative, (40) 1071
  removal of calcium from blood in study of, (75) 891
  respiration curve changes under electric test as aid in diagnosis of latent, (123) 436
  serum of patients with rachitis and, does not digest gland tissue, (224) 363
TETRAMETHYL glucosides, methyl glucosides and natural disaccharides, action of tissues on, (75) 909
TETRODON toxin, experimental study on, (25) 355
TEXAS, Byrd vs. State of, 345—Ml
  medical news, 41, 694, 956, 1214, 1805, 1903, 2142
THEOBROMIN sodium salicylate, effect of theocin and, on renal function in acute experimental nephritis, (42) 273
THEOCIN, effect of theobromin sodium salicylate and, on renal function in acute experimental nephritis, (42) 273
THERAPEUTIC Gazette, 1594—P
THERAPEUTICS, unhealthy tendencies in, *1
THERMAL baths, effect of, on circulation, (100) 69
THERMOESTHESIOMETER, (143) 1698
THERMOPENETRATION in lung tuberculosis, therapeutic effects of, 2109—ab
THERMORADIOTHERAPY in cancer, de Keating-Hart's *method* of fulguration and, (22) 1400
THIERSCH flaps, technic for, (71) 2079
THOMPSON, Vance, on painless childbirth, 2203—E
THOMPSON-McFADDEN Pellagra Commission, *1090, (48) 1422
THOMPSON'S Malted Food Company, stock in, 1494—P
THOMSEN'S DISEASE: See Myotonia Congenita
THORACOPLASTICS, extrapleural, modification of serologic reaction of blood after, (83) 203
THORAX, deformity of spine and, (188) 439
  diseases of, diagnosis of, (39) 2160
  dulness in, in infants, (101) 1334
  examination of, in children, (5) 1134
  gunshot wounds of *abdomen* and, (106) 359
  gunshot wounds of abdomen or, is operative treatment required, (22) 809
  in new-born infant, (54) 710
  operations, technic of, (93) 510, (128) 892, (58) 976
  resection of, extensive, for old chronic empyema, technic, (38) 976
  sarcoma of, (115) 2075
  surgery and differential atmospheric procedures, (79) 712
THORAX, visual inspection of abdomen and, (120) 2170
THORIUM X and benzol in leukemia, (198) 440
  biologic action of benzol, selenium, tellurium and, (38) 2312
THREADWORMS: See Oxyuris Vermicularis
THROAT, bacterins in affections of ear, nose and, (76) 509, (63) 707
  cancer of esophagus and, radiotherapy technic for, (81) 1060
  ear and nose, local manifestations in, associated with disease of the nervous system, (66) 890
  focal infection, chronic, of nose, mouth, ear and, *1636
  influenza of nose and, chronic, (21) 1420
  operations on nose and, normal horse serum in hemorrhage from, (2) 1094, (90) 1791
  pathologic conditions of nose and, and origin and treatment of *hyperthyroidism, *709*
  pulsation in, (181) 361
  relation of some diseases to nose and, (52) 279
  sore, septic, and infected milk, (32) 804
  sore, Wakefield and Stoneham epidemic, (14) 350
  streptococcus sore, epidemic of, traced to milk of cow with streptococcus mastitis, (26) 2071
  syphilis, latent and tertiary, in diseases of nose and, *1563
  syringe for ear, nose and, (64) 197
  table attachment for surgery of face, neck and, *483
  trifacial neuralgia and conditions of, (170) 973
THROMBIN effect of temperature on action of antithrombin and, (1) 2258
THROMBO-ANGIITIS, case of, Wassermann reaction long negative now positive, (70) 1982
  obliterans, is it infectious disease? (123) 1882
THROMBOPHLEBITIS, of sigmoid sinus originating in ear, *1389
  puerperal, (92) 608
  puerperal, treatment of, 1418—ab
THROMBOSIS and embolism in abdominal and pelvic surgery, 700
  and embolism in acute infections, (54) 197
  and embolism of mesenteric vessels, 1957—E
  cavernous sinus, (139) 971
  cavernous sinus, complicating suppurative labyrinthitis, (23) 1420
  cavernous sinus, simultaneous bilateral, 12 hours after mastoid operation, (32) 1421
  lateral sinus, 4 cases with recovery, (48) 60
  malarial, cerebellar dysergia from, (91) 1507
  mesenteric, originating from caseating tuberculous gland in youth, (3) 807
  otitic, of sigmoid sinus, without symptoms, (98) 62
  retinal vein, case of, (17) 967
  simple, non-infective, case of, (17) 354
THROMBUS, cerebral, following injury, (115) 63
  in pulmonary embolism, structure of, (53) 516
THUMB forceps for anastomosis, (47) 1421
THYMECTOMY, technic of, 8 cases, (7) 1609
THYMUS: See also *Goiter; Status* Lymphaticus
THYMUS and exophthalmic goiter, (71) 812, (20) 899, (53) 2078
  and rachitis, (59) 613
  and thyroid, *relation to growth,* 34—E
  clinical importance of, (176) 361, (6) 1009
  epithelioma of, in myasthenia, (17) 1059
  extirpation, results of, 132—ab, (45) 1790
  hyperplasia of, (97) 1327
  resection of, for simple and exophthalmic goiter, (29) 1237
  roentgenography of enlargement of, (87) 1607
THYMUS, roentgenotherapy not advisable in hypertrophy, (120) 436
  roentgenotherapy of, in exophthalmic goiter, (111) 2031
  tendency to suffocation from, (57) 976
THYROID: See also Goiter; Parathyroid; Thymus
THYROID accelerating involution in frog larva, effective principle in, (18) 2259
  accessory, at base of tongue, (52) 2166
  acquired disease of, and control, (36) 1421
  activity and iodin, (67) 1697
  acute atrophy of, (11) 1610
  and congenital myxedema, treatment, (97) 713
  and *hyperthyroidism, (11)* 354
  and thymus, relation to growth, 34—E
  artery, inferior, ligation of, for strumectomy, (119) 1809
  autotransplantation of, in partially thyroidectomized animals, (5) 967
  deficiency, (86) 1233
  degeneration of, in relation to gynecology and obstetrics, (12) 1694
  diseases, cause of, 1977—ab
  during menstruation not enlarged, (148) 438
  epinephrin in enlargement of, (63) 1982
  extract, action on lungs of, (66) 1238
  extract, effect on voluntary muscle, (8) 426
  extract in endemic cretinism, (120) 359
  functions of adrenals and, (69) 1326
  graft of monkey's, for myxedema in boy of fourteen, (30) 810
  hyperplasia absent in remainder of, in dogs after piecemeal removal of gland, (5) 967
  in pellagra, *2129
  inflammation of, and woody phlegmon, (112) 713
  lesions of, with exophthalmic goiter, (44) 895
  physiology of, (176) 439
  present knowledge of, (4) 2165
  problem, 1003—ab
  secretion and iodin, 1675—E
  secretion result of nerve stimulus, 325—E
  surgery under local anesthesia, (50) 1605
  surgical treatment of diseases of, (94) 1097
  toxemia, mild, and incipient lung tuberculosis, differential diagnosis of, 349—ab
  transplantation of, (51) 2078
  treatment, aims and technic of, (41) 2263
  treatment, metabolism during, (58) 1795
  tuberculosis of, (88) 1241
THYROIDITIS, acute, case of, (68) 2073
  acute infectious, with exophthalmic goiter symptoms, (104) 518
  acute influenzal, with Pott's disease in girl of thirteen, (38) 514
  acute tonsillitis complicated by acute, (13) 273
  chronic, (107) 436
THYROPARATHYROIDECTOMY, (70) 1232
  calcium metabolism after, (36) 1136
  influence of, on sugar content of blood and glycogen content of liver, (64) 61
TIBIA, fracture of fibula and, bone transplantation in, (158) 1609
  operation to restore, (76) 1241
  sarcoma, (129) 512
TIC, pedal, (44) 509
TICKS, (7) 2164
  arsenic dips in preventing infestation, (73) 1424
TIMING system, simple, (143) 1698
TINEA capitis tropicalis in Anglo-Egyptian Sudan, (13) 1329
TINNITUS, silver nitrate in eustachian tube for, (29) 1420
TISSUE, connective, effect of variation in osmotic tension and of dilution of culture media on cell proliferation of, (73) 890
TISSUE, connective, living 28 months outside of organism, (72) 281
  connective, 28 months old, present *condition of strain of,* (49) 428
  cultivation of, outside the body, (193) 286, (107) 2081, (133) 2170
  cultures, influence of gentian-violet on, 268—ab
  effect of gentian-violet on protozoa and, (20) 2259
  extracts, effect of, on growth of adult mammalian cells in vitro, (21) 2259
  hemostasis by application of living, (3) 431
  living, resistance of, to digestion, 248—E
  transplantation and explantation of organs and, 191—ab
  transplantation of connective, (68) 711
  transplantation of organs and, (26) 967
TOBACCO, amblyopia due to alcohol and, (113) 1426
  habit, (114) 1426
  influence of immoderate use of, on heart and vessels, (105) 518
  life expectancy and alcohol, (80) 1607
  longevity and, (62) 275
  prohibition of use of, 801—Ml
  smoke on animals, experimental study of effect of, (152) 206
  syphilis and alcohol as factors in intermittent claudication, (70) 280
TOCANALGINE, 2233—E
TOE, great, injuries to sesamoids, (30) 1605
TOLUYLENDIAMIN, effect of small doses on blood, (61) 977
TONGUE, accessory thyroid at base of, (52) 2166
  and soft palate, relation of surgery of faucial tonsil to, in *production of voice, (59) 197*
  black, (43) 356
  cancer, etiology and treatment, (1) 1328
  cancer, prognosis of, (31) 1884
  cancer, with amyloid disease, low arterial blood-pressure in, (17) 1329
  hemangioma of lower lip and, successful excision, (72) 357
  hypernephroma at base of, in woman of sixty-two, (35) 1510
  lichen planus of, (51) 606
  sore, and gums, symptoms of pernicious anemia, (81) 212
TONSIL, (182) 973, *1367, 1793—T
  abscess, peritonsillar, pathology of, (63) 1510
  and adenoid operation, evolution of, and Beck's procedure, (118) 510
  diphtheria bacilli in, negative results of electrophoresis in eradicating, (170) 205
  endamebas in, *1746
  faucial, gateway to general infections, *1638
  faucial, histopathology of, (85) 429, (29) 509
  faucial, surgery of, in relation to tongue and soft palate in voice production, (59) 197
  feeblemindedness, adenoids and, (73) 1881
  gangrene of, (86) 509
  hemostat, new, (63) 197
  hypertrophied, 2291—T
  infection, practical points in, (95) 1881
  inflammatory pathology of, (128) 1234
  lingual, affections of, treatment, (103) 2163
  lingual not faucial, (169) 973
  pharyngeal, in adult, (85) 353
  protein poison of, (92) 2162
  surgical view, (97) 1138
  syphilis, (16) 1135
TONSILLECTOME, new, (110) 1698
TONSILLECTOMY, (129) 205, (39) 2200
  death during, from reflex inhibition, (51) 1055
  indications and choice of operation, (123) 63, (122) 283, (59) 806, (96) 1063
  post-diphtheric polyneuritis cured by, (97) 69
TONSILLITIS, acute thyroiditis as *complication of acute,* (13) 273

TONSILLITIS, Döhle's inclusion bodies in scarlet fever, measles, diphtheria and, (67) 357
  follicular, treatment of, (108) 970
  follicular, with acute gastric fever, (64) 2073
TONSILLOTOME, evolution of, (20) 1420
TONSILLOTOMY or tonsillectomy, indications for, (96) 1063, (39) 2260
TORTICOLLIS, (55) 806
  treatment of, (13) 1793
TOURNIQUET, wire, in goiter operations, (119) 511
TOXEMIA, pregnancy, duodenal enema in, (91) 429
  pregnancy, eye manifestations of, *25
  pregnancy, treatment of, *158
TOXINS, mixed, effects of, in sarcoma, (14) 803
TRACHEA, bronchoscope in direct examination of larynx, bronchi, esophagus and, (62) 707
  gumma in, revealed in tracheoscopy, stretching stenosis for, (87) 1145
  perforation of tubercle bacilli into aorta and, (59) 516
  roentgenography of larynx and, *1627
  sarcoma, primary, (61) 707
  stenosis of, non-diphtheric, in children, (81) 1331
  stenosis of, with goiter, emphysema following, (73) 613
  surgery of heart, lung and, experimental, *1338
TRACHELOPLASTY for sterility due to stenosis of cervix uteri, (6) 1694
TRACHEOBRONCHIAL glands, tuberculous, rupture of, into air passages in children, (65) 1988
TRACHEOBRONCHOSCOPE, routine use of, as diagnostic and therapeutic measure, (85) 509
TRACHEOBRONCHOSCOPY and laryngoscopy, direct, (91) 435
TRACHEOTOMY, gumma of larynx necessitating, (19) 199, (87) 1145
  in laryngeal diphtheria, advantages of intubation of larynx over, (33) 895
  in laryngeal diphtheria, deferred death after, (21) 513
  retractor and tube pilot for emergency, (136) 1882
TRACHOMA, (74) 429, (6) 603, 2069—ab
  among Indians of United States, (114) 1882
  bacillus lactis bulgaricus in, (91) 2074
  control of, in Kentucky, 1417—ab, 2069—ab
  excision of tarsal cartilage and conjunctiva in old, (70) 353
  grattage in treatment of, (7) 603
  in Carolinas, 413
  in Indiana, 1602—ab
  in mountain sections of eastern Tennessee and northern Georgia, 1975—ab
  inspection lax in Porto Rico, 1309
  on Blackfeet reservation, (112) 1882
  prophylaxis of, in schoolchildren, (104) 2081
TRACINGS and photographic evidence admissible to show physical condition, 1318—Ml
TRADEMARKS and protected names for proprietaries, (76) 613
  German patents and, in England, 1310
TRAFFIC officers' neuroses, 2151—C
TRANSFUSION, (142) 1983
  Crile method of, facilitated, (112) 62
  direct and indirect, (117) 2075
  experimental research on, (38) 895
  further development of an apparatus for, (132) 892
  hemolysis following, 1785—ab
  in hemorrhagica neonatorum, (28) 1880
  methods, (132) 2164
  placental blood for, (135) 971
  syringe cannula system, *1542
  with or without its serum content, (119) 70
TRANSILLUMINATION, pocket flash lamp for, 321—ab
TRANSPLANTATION: See also Grafting
TRANSPLANTATION, bone, correction of nasal deformities by mechanical replacement and, (129) 2164
  bone, fate of, and regenerative power of constituents, (71) 1056
  bone, in compound fracture of tibia and fibula, (158) 1609
  bone, in femoral hernia, (26) 611
  bone, in fracture of spine, (133) 1883
  bone, in Pott's disease, (137) 512, (63) 890
  bone, in ununited fractures, (27) 2260
  bone, report of cases, (136) 893
  bone, source of regeneration in, (52) 2077
  connective tissue, (68) 711
  epiphysis, experimental, (69) 357
  fascia, autogenous, (121) 510
  fascia, for hernia, (51) 1790
  fascia, histologic changes in, (70) 357
  fascia, in abdominal wall injuries, (47) 356
  fascia lata, free, (31) 1605
  fat into orbit with enucleation, *545
  fibula best bone for, in conservative operations, (46) 356
  free, (25) 967
  hypophysis cerebri, (79) 2074
  kidney, (78) 1797, (86) 1798
  nerve, (45) 2166
  nerve in muscle, (38) 1237
  nerve, in muscle, direct, and neurotization corrects paralysis of trapezius muscle, (127) 71
  ovaries, 697
  tendon, after acute anterior poliomyelitis, 1229—ab
  testicle and ovary, (101) 1607, (125) 1698, (87) 1791, (105) 1881
  testicle, from dead to living body, (104) 354
  testicle heteroplastic, (102) 1607
  thyroid, (51) 2078
  tissues and organs, 191—ab, (26) 967
TRANSPOSITION, vesico-uterine, (85) 1056
  viscera, 2 cases of, (32) 709
TRANSUDATES, albumin content in differentiation of effusions and, (55) 356
  refraction index of blood sera and, (82) 435
TRAPEZIUS muscle, paralysis, direct implantation of nerve in muscle and neurotization corrects, (127) 71
TRAUMA and tuberculosis, causal relation, (34) 351
  aphasia due to, (135) 1882
  arteriovenous aneurysm, intracranial, affecting both eyes, (16) 2165
  bone repair following, process of, (8) 194
  central nervous system with reference to, prognosis and treatment of, (130) 1608
  cysts of metacarpal bones following, clinical recognition, *2272
  distant joint, contracture following, (46) 1239
  hip, in children and adolescents, (26) 1135
  hysteria due to, (26) 355, (82) 614
  myositis ossificans following, *1452, (62) 1796
  neurosis due to, (30) 432, 549—ab, (12) 1604
  osteomyelitis developing after, (164) 206, (120) 1244
  recrudescence of tuberculosis in intercurrent disease or, (105) 1243
  rupture of kidney from slight, (7) 1328
  shock due to, or asthenia, (46) 811
  spine, operative treatment, (35) 1238
  tetanus due to, (33) 1985
  tetanus due to, intravenous antitoxin in, (54) 1613
TREATMENT must be tested by principles and practice of particular school, 103—Ml
TRENDELENBURG'S operation for pulmonary embolism, (86) 203
TREPHINE, electric drill, saw and reamer in bone surgery, (155) 277
TREPHINING, decompressive, on sound side for intracranial hemorrhage, (62) 202
  sclerocorneal, for glaucoma, *215, (4) 1139, (24) 1610, (35) 2072
  sclerocorneal, for staphyloma of cornea, (9) 64
TREPONEMA Pallidum: See Spirochaeta Pallida
TRIATOMA transmitting Chagas' disease, (113) 1889
TRICHIASIS, Anagnostakis' operation for, (29) 1700
TRICHINOSIS and typhoid, (46) 428
  report of 15 cases of, (57) 806
TRICHOMYCOSIS palmellina in Philippines, etiology of, (135) 1698
TRICHONO-CARDIASIS rubra, case of, (52) 1055
TRICHOTILLOMANIA, *2126
TRICOPHYTON Malmsten, systemic position of, (22) 1793
TRIPLETS breast-fed successfully, (24) 432
TRISMUS, (52) 1137
  uteri decapitating fetus, (28) 65
TROPEOLIN as indicator for stomach acidity, (109) 1607
TROPHONEUROSIS, (28) 509
TROPICAL countries, tuberculosis in, (35) 1789
  diseases, new Hamburg institute for Marine and, (154) 360
  diseases, review of, (30) 894
  diseases, treatment of, (130) 360
  Medicine, London School of, 176
  medicine, student and investigator in, opportunities and needs of, (4) 603
  Queensland, coastal climate of, (10) 974
  residence, influence of, on blood, (5) 603
TROPIDOCERCA, morphologic development of egg of, (72) 1424
TRYPANOSOMA brucei, attenuated culture of, (27) 804
  in blood of jumping rodent, (113) 2081
  Rhodesiense, identity of, with trypanosome of same appearance in game,, (11) 199
TRYPANSOMIASIS, (45) 895
  in German West Africa, (125) 436
  in Lado of Anglo-Egyptian Sudan, (25) 1884
  recurrence of experimental, (88) 435
  serum and liver substances as levuloses in, (55) 706
TRYPSIN, absence of, in stomach in jaundice, significance of, (49) 274
  stomach ulcer result of erosion from, (132) 205
TSUCHIYA'S and Aufrecht's technics for determination of albumin content of urine, (56) 896
TUBE, duodenal, feeding by, (96) 203
  duodenal, present status of, (83) 357
  duodenal, simplification of examination with, (97) 1705
  gastroduodenal, modified, (127) 971
TUBERCLES in cancer of uterus cervix, (28) 1428
  intra-abdominal, intestinal short circuit for, (119) 1426
TUBERCULAR and tuberculous, distinction between, 51
TUBERCULIN, (118) 971
  administration, difficulties in, (39) 432
  Béraneck's, in tuberculosis, 4 cases, (13) 2165
  Calmette's, disappointing results with, (53) 612
  eosinophils increased after injection of, (127) 360
  in diagnosis of tuberculosis, 1971
  in genito-urinary tuberculosis, (60) 275
  in lung tuberculosis, (2) 512, (8) 703, (31) 709
  in tuberculosis, (75) 1233, *1386, (62) 1937
  in tuberculosis of glands of neck, (99) 1425
  in tuberculosis of larnyx, (3) 512
TUBERCULIN in tuberculosis, vaccination technic for, (49) 1143
  large doses, value of, (37) 1885
  old, favorable results with, (57) 612
  percutaneous treatment of tuberculosis, (98) 282, (162) 285
  progressive paralysis under, (78) 2168
  prophylactic use of, (145) 971
  reaction in focus in obscure hip-joint disease, diagnostic importance of, (78) 203, (68) 517
  reaction, intracutaneous, blood-picture with, (46) 1330
  reaction of tuberculous foci in skin to, (226) 363
  reaction, Pirquet and salve, for tuberculosis in children, (123) 1244
  reaction Pirquet and subcutaneous, in tuberculosis diagnosis in adult, comparative value, 349—ab
  reaction Pirquet, clinical value of, (94) 1969
  reaction, skin, curves to record, (93) 813
  reaction, skin, diagnostic value of, in recruiting, (104) 1057
  reaction, skin, in infants, (91) 358
  reaction, skin, in prophylaxis of tuberculosis, (97) 282
  reaction, skin, local necrosis following, (111) 1243
  reaction, subjective and objective symptoms of favorable and unfavorable, (65) 1790
  Rosenbach's experiences with, (78) 812
  Rosenbach's, in internal tuberculosis in children, negative experiences with, (68) 357
  test plate, Keller's, 2250
  topical employment of, (103) 1983
TUBERCULIZATION and immunization, (100) 1138, (110) 1327
TUBERCULOSIS, (57, 67) 429
  abdomen, operative treatment, 81 cases, (62) 10[illegible]2
  acidity of urine in, (85) 281
  acquisition of, 269—ab
  acute miliary, treatment of (106) 204
  air-baths in, 347—ab
  albumin content of blood in children with, (223) 363
  among negro laundresses, (82) 1233
  among physicians and nurses, (64) 429
  among potters, 347—ab
  and lymphogranulomatosis, connection between, (90) 614
  Bacillus: See Bacillus, Tuberculosis
  Béraneck's tuberculin in, 4 cases, (13) 2165
  bladder, cystoscopy with, (82) 281
  bladder, exclusion in severe, (104) 1990
  bladder, phenol instillation in, (91) 1138
  blood-platelets and, (32) 2072
  bone and joint, artificial heliotherapy for lupus and, (131) 2170
  bone and joint, radiotherapy of lupus and, (118) 2032
  bone and joint, sunlight treatment of, 348—ab
  bones, uncomplicated, treatment, (35) 351
  bovine, (52) 60
  bovine, and early tuberculosis in children, (3) 1135
  bovine and heredity, (8) 1978
  bovine and human, (19) 354
  bovine, in man, fatal, (55) 1239
  breast, (92) 920
  bronchial lymph-nodes, clinical and roentgenographic study, (11) 1324
  bureau of, its work and plans, (40) 889
  business proposition, (128) 376
  campaign against, (89) 198, (119) 1327, (98) 1425
  campaign against, German Central Committee for, session of, 46
  campaign against, in Wales, (1) 609
  campaign against, is it a failure, (103) 1881
  campaign against, is it becoming burlesque, (131) 971

TYPHUS FEVER, relapsing fever and, (37) 2311
relapsing fever, plague, and meningitis during war, 1218
report of 4 cases, (140) 431
urobilinuria and diazo reaction in diplobacillus exanthematicus and, (45) 1238
TYROSIN crystals in urine of normal pregnancy, (114) 1327

U

ULCER, cornea, etiology and treatment, (100) 708
duodenum, (102) 203, (110) 204, *1702, (62) 1701, (70) 1797
duodenum and pylorus, closure of pylorus for, (46) 976, *1525
duodenum, in infants, 5 cases, (7) 1978
duodenum, medical management of, (41) 1697
duodenum, operative treatment, 65 cases, (52) 1060
duodenum, pathology and etiology of, (2) 1235
duodenum, perforated, (23) 809, (38) 1231
duodenum, roentgenoscopy of, (11) 704, (86) 1057
duodenum stimulates stomach motor functioning, (82) 68
interdigital, (19) 1695
intestine, diagnosis of postoperative, (102) 615
jejunum, (73) 202
leg, (61) 806
leg, treatment of, *387
occult blood sign of open, (81) 69
painful, or fissure in ano, (79) 806
peptic, chronic perforation of, report of 4 cases, (79) 1056
peptic, dietetic treatment of hyperacidity, hypersecretion and, (40) 1429
peptic, diverticulum in stomach from, (145) 206
pylorectomy for, (17) 508
rodent, copper and mercury lamp in, (74) 613
rodent, roentgenotherapy, (32) 894
stitch, after gastro-enterostomy, 269—ab
stomach, acute, effect of anemia on pathological processes in, (39) 1700
stomach, adherent perforating, treatment of, (41) 1422
stomach and duodenum, (27-29) 967, 1736—ab
stomach and duodenum, concomitant, diagnosis of, (108) 1705
stomach and duodenum, diagnosis (29) 967, (71) 1703
stomach and duodenum, diagnosis and treatment (89) 429, (56) 1987
stomach and duodenum, difference in morphology of blood in chronic appendicitis and, (9) 1604
stomach and duodenum, end-results in, *1836
stomach and duodenum, etiology of, (36) 1330
stomach and duodenum, exclusion of pylorus by suture for, (42) 612
stomach and duodenum, intestinal stasis and, (113) 1983
stomach and duodenum, roentgenoscopy of, (147) 276, (40) 1696
stomach and duodenum, ruptured, (17) 2070
stomach and duodenum, selection of operation for, 793 (11) 808, (120) 1382
stomach and duodenum, surgery of, *1184, (121) 1882
stomach and duodenum, symptomatology and diagnosis, (42) 1697
stomach and duodenum, treatment, (31) 1231
stomach cancer and, (59) 1701
stomach, cautery in, (155) 1609
stomach, digestion leukocytosis in differentiation of cancer and, (77) 1032
stomach, direct intragastric method of treating, (5) 199
stomach, early differentiation of cancer and, (59) 1240
stomach, etiology of, (49) 1885
stomach, etiology of appendicitis and, (15) 2075
stomach, experimental, chronic, *380
stomach, familial occurrence of, (60) 1701
stomach, gastrostomy in, (10) 808
ULCER, stomach, Gluzinski's test, in, (25) 350
stomach, hard, when to operate for, (237) 363
stomach, in Bavaria, (64) 1701
stomach in children before puberty, (142) 1608
stomach, lesser curvature, (65) 606
stomach, operative treatment of, (114) 436, (103) 1138
stomach or duodenum, necessity of combating hypersecretion with, (51) 511
stomach, pylorus in etiology and treatment of, (51) 1325
stomach, remote from pylorus, (89) 614
stomach, resection of, (71) 711
stomach, residuum in stomach later than 6 hours with, (68) 812
stomach, result of erosion from trypsin, (132) 205
stomach, roentgenoscopy in, (46) 60, (18) 350
stomach, treatment, (21) 508
stomach, with hour-glass contraction, (64) 1332
stomach with secondary gastric cancer, frequency of, (89) 203
tropical, blue button, undescribed type of, in West Indies, (86) 1327
ULTRAVIOLET and infra-red rays, colored lenses to cut down heat radiation and neutralize, (97) 1233
radiation on the eye, harmless, 1394—E
rays, sterilization of vaccines by, (107) 204, (59) 897
UMBILICAL cord, death of full-term fetus due to constriction by amniotic bands of, rupture of amnion, hydramnios, (145) 276
cord or funis retractor, *1031
UMBILICUS, adenomas of, (65) 202
infections, (116) 1698
waterproof dressing for, (66) 1144
UNCINARIASIS, (84) 892, 1391—T
and arthritis, (78) 429
campaign in Canal Zone, 2239
diabetes mellitus and, (140) 199
eyes and, *151
hemoglobinuria in, (111) 615
in Fiji, (23) 1428
in North Nyasa district, (33) 709
in Panama, 1865
in Peru, 2144
intestine parasites with reference to, (49) 1137
medical inspection and education of schoolchildren most probable solution of malaria and, (17) 1054
oil of chenopodium in, 1375—ab, *1946
pregnancy and dangers, (112) 2075
treatment of the anemia, (19) 513
tropical parasite causing malady resembling, 686—E
UNCONSCIOUSNESS, bilateral extensor response in, (22) 1329
UNGUENTUM Selenio Vanadic (v. Roemer), 1870—P
UNITED States Army: See Army, United States
States Civil Service examination for epidemiologist, 1964
States hospital ship for deep-sea fishermen, (95) 275
States, more medical aid from, 1775
States naval hospitals in American Samoa, (58) 509
States senate, committee document from, printed for use of committee on public health and national quarantine sent to newspapers, 689—E
UNIVERSITY: See also Colleges; Education; Schools, Medical
UNIVERSITY extension methods, application of, to certain lines of medical practice, (191) 973
graduate schools of medicine, 1049
in Austria-Hungary, new, 1964
life and war, 1217
of Aix offers hospitality to Belgian universities, 1775
of Paris, resumption of courses at, 1590
of Pennsylvania, graduates of medical department of, who have taught or practiced in Cincinnati, (102) 970, (53) 1137, (85) 1233
of Vermont requires hospital intern year, 1049
UNIVERSITY of Vienna buildings transformed into hospital, 1683
UREA and non-protein nitrogen of blood in health and in disease, estimated by Folin's methods, (25) 2071
and total nitrogen of blood in liver disease, *2214
and total non-protein nitrogen in human blood, concentration and elimination, (61) 1232
distribution and elimination, (62) 61
distribution of, in the body, 1115—E
excretion and phthalein test in chronic nephritis, (43) 811
formation and liver, 1482—E
gasometric determination of, in few drops of blood, (62) 977
hydrochlorid and quinin as local anesthetic, (98) 1327
importance of liver in formation of, from amino-acids, (46) 605
in blood, prognosis in chronic nephritis and, (54) 66, (77) 281
nitrogen and total nitrogen, increase of, in cerebrospinal fluid in insanity, (43) 2072
non-protein nitrogen in, 269—ab
retention, uremia with unusual degree of, (12) 609
salts and ammonium, utilization by organism of such nitrogenous compounds as, 1768—E
urease, permanent preparation of, in determination of, (62) 1697
urease test in body fluids for, (116) 204
UREASE, action of enzymes and, (60) 1697
effect of hydrogen ion concentration and inhibiting substances on, (61) 1697
permanent preparation of, and use in determination of urea (62) 1697
test for urea in body fluids (116) 204
UREASE-DUNNING, 165
UREMIA, acid content of blood increased in, (81) 517
and indicanemia or azotemia, (42) 1470
classification of, (88) 2169
diagnosis, bad taste, a new sign in, (17) 59
scarlatinal, meningeal symptoms in scarlet fever and, (55) 710
symptoms of, (118) 71
with unusual degree of urea retention, (12) 609
UREMIC constant, Ambard's, in nephritis, (85) 1615
URETER calculus, (109) 1426, (97) 2169
calculus, expulsion of, after injection of glycerin, (42) 66
calculus, unusually large, (40) 2260
cancer of, primary, (98) 2169
catheterization and hematurias, (104) 1507
circulation of kidneys following ligation of one, (78) 890
diagnostic methods applicable to lesions of kidney and, (117) 276
double, found at necropsy, (119) 714
grafted into rectum in ectopia vesica, (4) 199
in hernial sac, (39) 1612
ligation of one, (3) 1230
obstruction, influence of, on kidney infections, (31) 509
papillomas hiding mouth of, (40) 66
reflux of urine into, (37) 810
roentgenoscopy of kidney and variations and disorders, (10) 1135
roentgenoscopy of normal kidney and, (32) 509
severed, repair of, (29) 976
URETHRA abscess in women, (38) 810
congenital malformation of posterior, (11) 2309
disease of posterior, disturbances in urogenital functioning with, (124) 71
female, laceration of, (137) 1882
forking, (105) 1990
gonorrheal infection of, chronic prostatitis following, (96) 1697
growth of gonococcus and staphylococcus albus from, in plate culture, (25) 1505
internal hemorrhoid cause of symptoms in prostate and, (104) 62
URETHRA polyps of male, clinical manifestations of, (40) 1421
projection and mensuration of posterior, and vesical floor by posterior urethral calipers and roentgenography, (102) 429
resection, course of urine diverted in, (195) 440
rupture of, following fracture of pelvis, (101) 1234
ruptured, suture of, (37) 66
second, without connection with bladder, (85) 979
stricture, dilatation by retrograde passage of filiform guide, (125) 510
stricture, impassable, Sinclair's method for operating on, (131) 1882
stricture of male, (67) 890
stricture, symptomatology of, (36) 706
tumor of mouth of, in female, (44) 1422
verumontanum in deep, diseases of, (95) 1607
URETHRITIS, (49) 1137
endoscopic diagnosis and treatment of proliferating, (83) 979
URETHROSCOPY, (100) 2074
URIC Acid: See Acid, Uric
URICOLYSIS, (81) 970
URINARY amylase and blood, (18) 1604
antiseptic, hexamethylenamin as, (13) 2073
antiseptics, hexamethylenetetramin (21) 200
creatinin output of normal woman, 2296—E
deposits, clinical value of staining, (9) 894
dextrin, composition and derivatives of, (18) 1508
diastase test and Loewi's reaction in pancreatic lesions, (7) 199
diastase test with ruptured duodenum, (13) 1609
findings in pathologic conditions of gastro-intestinal tract, (45) 2260
sediment, microscopy of, in life-insurance examinations, (154) 1699
solids, excretion of, (9) 1058
surgery, work in, (57) 279
tract, bacillus coli infection of, in children, (3) 278
tract calculi, indications with, (96) 69
tract, deformity of, (119) 714
tract, diagnosis and surgical lesions of, (46) 1137
tract, diagnosis of, lesions, (63) 969
tract, diseases of, produced by diseases of genitalia in female, 58—ab, (57) 2073
tract, infection of, diagnosis and treatment, (81) 1697
tract, myiasis of, *2285
tract, purulent disease of, in young children, (100) 1334, (121) 1705
tract, pyogenic infections of upper, (8) 1135
tract tuberculosis, diagnosis in early stages of (122) 1608
URINATE, inability to, on account of pain caused by plum-stone in rectum, *403
URINE, acetone, aceto-acetic acid and B-oxybutyric acid in, turbidity test for determination of, (43) 605
acid-fast bacilli in, significance of, (153) 1699
acidity of, in tuberculosis, (85) 281
albumin in, determination of, by Aufrecht's and Tsuchiya's technics, (56) 896
albumin in, quantitative test of, (44) 606, (105) 1425
alcohol in milk and, 883
ammoniacal, clinical significance of, in infants and young children, (100) 429
analysis in diseases of children and infants, *1602
and ammonia, nitrogen excretion in, on different diets, especially rice diet, (66) 977
arsenic excretion in, after subcutaneous or intravenous injection of salvarsan, (43) 2077

URINE, bacteriology of, in parenchymatous nephritis, *1661
Bence-Jones protein in, origin of, 1481—E
bile pigment in, with hemolytic jaundice, (13) 2261
blood infections of, recognition of, (13) 1883
Cammidge reaction in, 1581—E, 2063—C
cholesterin esters in, (87) 1615, (86) 2169
colloidal nitrogen compounds in, in cancer, (58) 1332, 1584—E
color test for uric acid in, (117) 714
composition of, and foods, (55) 1423
course diverted in resection of urethra, (195) 440
creatin and creatinin from, (35) 605
creatin in, origin of, (37) 605
creatin in, test for, (36) 605
defensive ferments in, recognition of, (81) 1607
diacetic acid in, test for, and of degree of acidosis in diabetics, (124) 520
diastase content of, diagnostic import of, (156) 72
diastase content of, normal, (2) 705
diet which keeps it alkaline wards off joint trouble, (137) 205
drying, for chemical analysis, (68) 1232
during first few days of life (110) 713
electric conductability of, in diagnosis of kidney disease, (55) 976
elimination of lactic acid in, and connection with carbohydrate metabolism, (216) 362
examination, (44) 66
examination in life-insurance examinations, (155) 1699
excretion of purine catabolites in, of ungulates, (84) 970
excretion of purine catabolites in, of marsupials, rodents and carnivora, (68) 969
glucose in, in diabetes, test to determine amount of, (11) 1139
glucose in, test to estimate percentage, (7) 431
hemoglobin in, sand test for bile pigment and, (58) 1613
hyaline casts produced by magnesium salt in dogs, 170—E
in cancer, 585—E
in constipation, (50) 710
in nephritis of scarlet fever and diphtheria, (9) 1058
in pregnancy, bacterial content of, (169) 285
incontinence of, in women, operation for, (26) 1793
incontinence of, operative treatment for genital prolapse and, (70) 202
lactic acid in, in cyclic vomiting in children, (3) 887
ninhydrin reaction in, in pregnancy, (16) 887
nitrates in, significance of, (12) 1883
nitrogen output of, affected by involution of uterus, (24) 705
peptolytic ferments in, (46) 1613
peptolytic ferments in, during cell destruction, (143) 284
phenolsulphonephthalein excretion in, and non-protein nitrogen content of blood, (26) 1695
protective ferments in, (102) 713
reaction, hexamethylenamin, (110) 70
reflux of, into ureter, (37) 810
retention, treatment, (116) 1983
retention under morphin, (77) 978
Russo and Fuchs-Lontz methylene blue reactions in, not specific in any disease, (108) 615
serodiagnosis of, not reliable in tuberculosis of kidney, (130) 436
starch digesting enzyme in, 2295—E
sugar in, test for, (127) 520, (52) 1430
sulphur in, volumetric test for total, (47) 606
test affected by hexamethylenamin, (86) 812
tests for cancer unreliable, (73) 281
toxicity of serum, colostrum and, in pregnancy, labor and puerperium, (64) 812
URINE, tuberculosis bacilli in, examination for, (9) 1979
tuberculosis bacilli in, with teratoma testis, (78) 2074
tyrosin crystals in, of normal pregnancy, (114) 1327
UROBILIN, 404—E
UROBILINURIA and Diazo reaction in typhus and diplobacillus exanthematicus, (45) 1238
in liver disease, (23) 1059
UROCHROMOGEN and diazo test in prognosis of tuberculosis, *1294
reaction, (139) 72
reaction in lung tuberculosis, (267) 364
reaction, influence of bile pigments and heat on, (156) 206
UROLOGY and gynecology, relation to general surgery, (69) 2073
anesthesia, regional and local, (39) 66
diagnostic procedures in, (94) 1327
in women, importance of, (112) 198
psychotherapy in, (35) 1231
UROTROPIN: See Hexamethylenamin
URTICARIA and amins, 1861—E
UTAH medical news, 412, 1214, 1403
state board April report, 884
state board July report, 2064
UTERUS, abscess in wall, (67) 202
abscess, sensitized bacillus proteus in, (2) 199
absence of, (22) 1236
absence of adnexa and, congenital, (98) 1138
adenomyoma of, migratory, (15) 1610
adenomyoma of, with adenomyomata in fallopian tube and sigmoid, (16) 1610
amputation, high, to arrest pregnancy and prevent conception in lung tuberculosis, (37) 1510
amputation of cervix, and modification of anterior colporrhaphy, (16) 1884
atony of, and pituitary extract, (182) 286
bicornate, containing 3 pregnancies, *2129
bicornis bicollis, 6 months' pregnancy, right horn, pyometra left horn, (17) 64
cancer, (34) 59, (19) 894, (175, 177) 973, (110) 1138, (69) 1606
cancer, abdominal operation in, (131) 71, (19) 1980
cancer and myoma in same, (188) 286
cancer cured by postoperative infection, 2 cases, 1418—ab, (12) 2070
cancer, early diagnosis, (176) 973, 1499—ab
cancer, indications and technic *for operative* treatment, (82) 1145
cancer, inoperable, heat in, (16) 808, (140) 1608
cancer, inoperable, Percy treatment of, *817
cancer, necessity of constantly looking for, 1319—ab, (7) 2070
cancer of cervix, (27) 59, (142) 1328
cancer of cervix, accessibility of diseased area around neck of uterus and vagina, (111) 1138
cancer of cervix, tubercles in, (28) 1428
cancer of vagina and, mesothorium in, (62) 1144
cancer, operations for recurrence of, permanent cures, (60) 67
cancer, radical operative treatment for, (19) 809, (141) 1608
cancer, radium, (160) 206, (158) 438, 1786—ab
cancer, radium and roentgenotherapy of, (3) 349, (114) 1334
catarrh of cervix, induced by gonorrheal threads free from gonococci, (44) 1510
corpus luteum, influence of, during early stages of pregnancy on breast and mucosa of, 32—E
dilatation of cervix in treatment of dysmenorrhea and sterility, (100) 1889
displacement, Alexander-Adams operation for, (65) 1060
displacement, improved Gilliam operation for, (143) 277
displacement of bladder, rectum and, end results of 109 operations, (9) 2070
UTERUS displacement, operations for, and subsequent labors, (114) 1608
displacement, treatment, (65) 1326
double, retention of blood in half of, (46) 201
drainage, continuous, (93) 1607
drugs, action of certain, on guinea-pig and rat, (90) 970
fibroid, can surgery be eliminated in treatment of, (152) 1609
fibroid, diagnosis and early surgical interference, (124) 1234
fibroid, myomectomy with resection of, 1418—ab, (11) 2070
fibroid, subserous, multiple, complicating pregnancy, hysterectomy for, (83) 607
fibroid, unusual complication in pregnant, (19) 1610
fibroma accompanying fibroma of broad ligament, (31) 975
fibroma and hemorrhages, roentgenotherapy of, (138) 616
fibroma, calcified, compressing sigmoid colon, (120) 892
fibromyomata, treatment, (4) 1507
gravid, impassable contraction of, cesarean section verifies, (120) 198
gunshot wound of gravid, (81) 353
hemorrhage in girls, (66) 516
hemorrhage, ovariectomy for, (69) 202
hemorrhage, pathologic physiology of, *617
hemorrhage, radium in fibroid tumors and, *622
hemorrhage, roentgenotherapy in, *628
hernia of vagina, fallopian tubes and, in hermaphrodite, (10) 708
hour-glass contraction, following use of pituitary extract, (111) 354
hypoplasia, infantile, masks serious pathologic processes, (57) 811
inflammatory disease of adnexa and, surgical treatment of, (190) 362
interposition of, end-results, (149) 1608
inversion of, (54) 1331, (146) 1608
involution of, effect on nitrogen output of urine, (24) 705
iodin, nascent, in local treatment of, (110) 615
lower segment of, importance of distinguishing, (103) 2169
myoma and malignancy, (188) 286, 1417—ab
myoma, conservative operative treatment of, (64) 202
myoma, treatment, (107) 70
pituitary extract, effect of, on contractions of, in labor, (73) 517
polyp of cervix, complicated by pregnancy (94) 510
post-partum inversion and pathogenesis of obstetric inversion, (4) 349
pregnant, traumatic rupture of, (66) 1060
prolapse, (19) 610
prolapse and rectocele, transposition of uterus and bladder for cure of, (62) 969
prolapse, extraperitoneal suspension of, to cure, (134) 72
prolapse, improved technic for treatment of, (63) 812
prolapse, surgical treatment, (50) 889, (90) 1056
prolapse, treatment, (80) 429
removal of, instead of cesarean section, in infected cases, (118) 1705
replacement with Buteau suspension, (46) 889
retroversion, abdominal intraperitoneal correction of, (107) 615
retroversion, factors of failure in operations for, *541
retroversion following confinement, (1) 507
retroversion, forward fixation of cervix cause of, (124) 1882
retroversion, treatment of, (17) 610
retroversion, uncomplicated, treatment by sling operation, (28) 709
retroverted gravid, ventrofixation of, (50) 811
rupture, during labor, report of spontaneous case, (4) 507
rupture of pregnant, from shotgun wound of abdomen, *243
UTERUS rupture, spontaneous at term, due to muscular degeneration, (59) 811
rupture, through scar of old cesarean section, (7) 1507
sarcoma of cervix, grape-like, (21) 1610
sarcoma of round ligament of, (126) 892
sarcoma secondary to infectious granuloma, (66) 67
segments of, (30) 1428
stem pessary, dangers in use of, (8) 1694, (86) 1887
tears of cervix and perineum, importance and significance of, (174) 973
tent dilatation, (83) 1887
tracheloplasty for sterility due to stenosis of cervix, (6) 1694
transplantable sarcoma, in rat, (27) 278
transposition of bladder and, (85) 1056
tumors of adnexa and, disease of lower adominal organs simulating, 6 cases, (17) 2165
tumors, roentgenotherapy for hemorrhages and, (120) 714
tumors, silver salt in salve, vehicle for roentgenoscopic diagnosis of, (148) 206

V

VACCINATION, bacillus typhosus, blood-cell picture in paratyphoid and after, (43) 1605
cholera, of troops, 1682
compulsory, compatible with compulsory school attendance, 2307—Ml
damages for, 43
economic aspect of, 1051—ab
eruption, annular serpiginous bullous, complicating, (109) 2163
exemption of those conscientiously opposed to, 425—Ml
in Vera Cruz, 256
meningitis, epidemic, prophylactic, *2126
paratyphoid, (25) 1428
revaccination morally obligatory, (57) 1701
shields in, 2062—C
small-pox and, (124) 1983, (76) 1988, (107) 2169
small-pox, and new vaccination law in Siam, (35) 1985
suit, Montreal wins in, 1682
technic of, (47) 2260
tuberculosis, (55) 201, (49) 1143
typhoid, 11—ab, 296—ab, 1314—C, (48) 1795, (7) 2159
typhoid, A. E. Wright recommends, 1124
typhoid, and cholera, 1218
typhoid, and immunity, 1688
typhoid, and paratyphoid, (44) 1605
typhoid, at Winnipeg General Hospital, (56) 1605
typhoid, cholera and dysentery, (67) 2079
typhoid, experimental study of methods, (28) 2071
typhoid, favorable experiences with, in Italy, (138) 72
typhoid, history of, (63) 275
typhoid, in children, (89) 608
typhoid, of Canadian troops, 1490
typhoid, of English army, compulsory, 957
typhoid, of National Guard of Colorado, (62) 2161
typhoid, of personnel of Paris hospitals, (49) 201
typhoid, of troops, 1590
typhoid, prophylactic, 1577—T, 1692—ab
typhoid, reaction of, (20) 709
typhoid, technic for, (49) 1701
typhoid, urged by Osler, 877
VACCINE, acne, 1204, 1479
and immunity in relation to surgery, (92) 62
antirabic, 1953, 2043
autogenous, 1502—ab
autogenous, in chronic pus infections, (45) 428
autogenous, in relapsing acute iritis, (165) 973
bacillus coli, 1204, 1479, 1763
bacillus Friedlander, in fibrosis of lung, (28) 355
bacillus of Bordet-Gengou, 1204

- VACCINE, bacillus pyocyaneus, 1204, 1479, 1953
  - bacterial, and theory of use, (82) 197
  - bacterial, in ear, nose and throat affections, (76) 509, (63, 64) 707
  - bacterial, preparation of, *1011, (141) 1983
  - bacterial; scarlet fever, 796
  - bacterial, sensitized, in puerperal infections, prophylactic use of, (1) 199
  - von Behring's, active immunization against diphtheria by, (10) 887
  - cancer, and anticancer globulins in surgical treatment of malignancy, *1258
  - gonococcus, 1204, 1577
  - gonococcus, gonorrheal keratitis after reinjection of, (137) 437
  - in hay-fever, 340
  - in wound healing, (90) 275
  - lichen in natives, (19) 64
  - meningococcus, 1295
  - mixed, and phylacogens, 785—E
  - mouth streptococcal, and emetin hydrochlorid hypodermically in sprue, (32) 200
  - pneumococcal, in psoas abscess, (18) 354
  - pneumococcus, 1295, 1577
  - rational use of, (105) 970
  - serobacterins and lactic-acid ferments, 1223
  - standardization of, (18) 709
  - staphylococcus, 1295, 1577, 1763
  - sterilization of, with ultraviolet rays, (107) 204, (59) 897
  - streptococcus, 1296, 1577, 1953
  - Tubercle, Non-Virulent, Sherman's, refused recognition by Council, 1870—P
  - tuberculosis, (199) 362
  - typhoid, 1296, 1577, 1953
  - typhoid, and carriers, 420
  - typhoid, army, source of, 698
  - typhoid, in prophylaxis and treatment, present status of, (73) 61
  - typhoid, preparation and standardization of, (19) 709
  - typhoid, sterilized with iodin, (18) 2262
  - use of, during war, 1683
  - virus, 1296
  - virus and post-vaccination tetanus, 1032—E
- VACCINE THERAPY, (132) 63, 1478—T
  - accessory sinus suppuration, (65) 707
  - arthritis deformans, 1596
  - bacterial diseases of eye, (35) 1696
  - diphtheria carriers, (108) 1698, (94) 1982
  - ear disease, (101) 2163
  - external, (50) 1981
  - furunculosis, (133) 437
  - gonorrhea, (38) 66, (111) 282, (99) 608, (70) 1430, (60) 1613, (77) 1703, (28) 2262
  - gonorrhea, Nicolle and Blaizot's, (5) 2164
  - improved technic for, (81) 1989
  - lung tuberculosis, secondary infections of, (1) 512
  - mixed infection in tuberculosis, (163) 285
  - ozena, etiology and, (98) 713
  - rheumatism, chronic, (88) 62
  - streptococcal arthritis, (40) 805
  - theory and application, (146) 971
  - typhoid, (25) 196, (9) 708, (71) 977, (108) 1064, (70) 1144
  - typhoid and Widal reaction, (47) 1137
  - value of serum and, unusual instances, (122) 276
  - vulvovaginitis in children, (37) 514
  - whooping-cough, (69) 429, 796, *1007, (10) 1054
- VACCINIA, hematology of small-pox and, (107) 518
  - small-pox and chicken-pox, organism of, (72) 606
- VACUUM diseases of maxillary sinus, (17) 273
- VAGINA, cancer of uterus and, mesothorium in, (62) 1144
  - cancer, primary, radium and Roentgen rays in, (66) 606
  - discharge from, (94) 608
  - douches, medicated, during pregnancy and parturition, (53) 1331
  - examinations during labor, danger of, (48) 889
- VAGINA, formation of new, in congenital vaginal malformation, (81) 1056
  - formation out of rectum, (177) 285
  - gummatous ulceration in, (71) 1240
  - hernia of uterus, fallopian tubes and, in hermaphrodite, (10) 708
  - myomas, (63) 67
- VAGINITIS, bacteriology of, (23) 1505
- VAGOTOMY, (96) 518
  - and gastric crises, (85) 614
- VAGRANCY, pathologic aspects of, 324—E
- VAGUS nerve injury, in operations on neck, (194) 440, (83) 1145
  - system and seasickness, (24) 2311
- VARICELLA: See Chicken-Pox
- VARICES in bladder, hematuria from, (169) 438
  - infectious diseases as factor in, (146) 206
  - kidney, resection for, (13) 1236
  - leg, combination treatment of, (64) 613
  - of internal saphenous vein resembling strangulated femoral hernia, (76) 197
- VARICOCELE operations, (152) 276
  - pelvic, *391
- VARICOSE veins, operating on, (93) 1333
- VARIOLA: See Small-Pox
- VARNISH in treatment of wounds, (27) 2311
  - to immobilize germs, (105) 1705
- VASOMOTOR apparatus in pneumonia, (17) 888, 1303—E
  - center, effect of hemorrhage and reinjection of blood and saline solution on, (21) 888
  - center, effect of intravenous infusion of normal salt solution on, (22) 888
  - disorders, (64) 1790
  - irritability and extirpation of ovary, (27) 889
  - irritability and extirpation of testes, (16) 1605
- VEGETABLE, alcoholic extract of, for scurvy, (136) 283, (87) 1063
  - and cod-liver oil in infant-feeding, superior to butter and cream, (111) 359
  - proteins, formation of antibodies in rats fed on, (22) 1504
- VEIN, external iliac, calcareous shell in, 20 years after puerperal phlebitis, (6) 349
  - jugular, resection of, in sinus operation, (28) 1420
  - portal, and hepatic artery, outflow of blood from liver as affected by variations in conditions of, (24) 888
  - retinal, thrombosis of, (17) 967
  - saphenous, varix of internal, resembling strangulated femoral hernia, (76) 197
  - varicose, operating on, (93) 1333
- VELOCITY, application of gait of man and animals to laws of, (61) 2078
- VENA CAVA, inferior, congested veins in back with impeded circulation in, (81) 1145
  - injury of, during nephrectomy, (107) 608
- VENEREAL DISEASE, (60) 1510
  - and nervous diseases, (67) 806
  - control of, (83) 1881
  - date and place of birth instead of names for secrecy in notification of, (61) 1613
  - in army, (86) 1241, (44) 1795
  - in Denmark, public measures against, (6) 894
  - National Council for Combating, 495
  - prophylaxis at Fort Washington, (97) 429
  - responsibility of state in, (5) 894
  - Royal Commission on, 176, 254, 333
  - statistics of, 497
  - ulcer due to, diagnosis and treatment of, (28) 605
- VENESECTION, changes in blood-serum after, (116) 615
  - in pneumonia, (94) 1507
- VENOUS-PRESSURE apparatus, (143) 1698
- VENTILATION, 1672—E
  - and studying condition of hospital air, *1621
  - horizontal, by differential aeration, (215) 362
- VENTILATION, hospital, from ventilating engineer's point of view, *1628
  - hospital, from viewpoint of clinician, *1623
  - plants for hospital, tests of, *1620
- VERACOLATE a proprietary nostrum, 420
- VERA CRUZ, dysentery among troops in, 256
  - malaria campaign among troops in, 256
  - medical and sanitary affairs in, 959
  - public health and sanitation in, 256
  - vaccination in, 256
  - wounded at, (111) 1057
- VERATRONE in eclampsia, (8) 1507
- VERMONT medical news, 1308
  - state board July report, 2064
- VERONAL poisoning, chronic, (75) 2168
  - poisoning, 2 cases of, (39) 279
- VERRUCA, plantar, chromic acid for, 262—C
  - transmission of Peruvian, to animals, 497—ab
- VERRUCOSE dermatitis, (119) 1234
- VERTEBRAE, cervical, dislocation of, (111) 436
  - fifth lumbar, bifurcation of transverse process of, (11) 1788
  - first cervical, removal of bullet from, (50) 2160
  - first cervical, rotary dislocation of, (51) 2160
  - fracture, diagnosis and prognosis, (89) 69
  - fracture of lumbar, transverse process, (54) 1511
  - tuberculosis of, bone splinting in, (15) 2309
- VERUMONTANUM in deep urethral diseases, (95) 1607
- VESALIUS, passing of, (17) 1700, (14) 2165
- VESICOVAGINAL fistula, *238, (57) 1424
  - fistula after hysterectomy, closure of, (64) 2161
  - fistula in child 8 years old, spontaneous cure after removal of hairpin, (8) 349
- VESICULECTOMY, effects of, 502
- VESICULITIS, seminal, pathology, diagnosis and treatment, (38) 1421
- VETERINARY corps for army, commissioned, (108) 275
  - diploma, new, 44
  - hygiene and public health, (135) 276
- VIBRATIONS, sonorous, in ear diseases, *2220
- VICINE, (48) 605
- VIENNA medical news, 497
  - medical students in, restriction of number of, 497
  - notifiable diseases in, (76) 1887
  - postgraduate study in, (67) 1506, (106) 1507
- VINCENT'S ANGINA, (92) 353, (33) 1880, (67) 2073
  - and diphtheria, (55) 1511
  - severe case of, (90) 1138
  - study of, (22) 1420
- VIRGINIA medical news, 412, 792, 1214, 1588, 1773, 2239
- VIRUS, filtrable, (144) 437, (106) 1064
  - filtrable, colds and coughs from, (91) 614
- VISCERA, transposition of, 2 cases of, (32) 709
- VISCEROPTOSIS: See Splanchnoptosis
- VISION, acuity of, aspects of, (71) 707
  - binocular, and optic chiasm, (115) 354
  - concomitant disturbances of, due to acute insular sclerosis, *2001
  - conservation of, (101) 608, (1) 802, (119) 1608
  - double inversion of, (18) 967
  - hygiene of reading and, (4) 1058
  - necessary for shooting, medicolegal problem, (8) 1235
  - testing, international standard for, and standardizing other visual tests, *718
  - tests of board of trade, results, (3) 1139
- VITAMINS and flavors, 2296—E
  - influence of fuel value of dietary on quantity of, to prevent beriberi, (10) 278
- VOCAL cords, papillomata of, (108) 1234
- VOICE fatigue in singers and speakers, (124) 2164
  - hygiene of speech and, (94) 713
  - nasal and pharyngeal conditions affecting, (82) 1697
  - production, surgery of faucial tonsil as it relates to functions of tongue and soft palate in, (59) 197
  - sign in chorea, (2) 193, (3) 1502
- VOLVULUS, (129) 1882
  - of jejuno-ileum with anterior gastro-enterostomy, (67) 606
- VOMITING, cyclic, in children, causes, (69) 434
  - cyclic, in children, lactic acid in urine, (3) 887
  - habitual, and pylorospasm, in infants, (139) 283
  - periodical, with acetonemia, (87) 813
  - pregnancy, pernicious, treatment of, (76) 708
  - pregnancy, uncontrollable, (185) 361
  - recurrent, in private practice, 131—ab
  - recurrent, 141 cases, (5) 1502
  - sugar in athrepsia and incessant, in infants, (54) 434
- VULVA, atresia of, superficial, in patient of twenty-two, (20) 1610
  - cancer, 3 cases, (167) 361
  - gummatous ulceration in vagina and, (71) 1240
- VULVOVAGINITIS in children, prevention and treatment, (3) 1604
  - vaccine therapy of, in children, (37) 514

W

- WALDEYER'S ring, origin of name, 964
- WALKING, (99) 1881
- WALLS, bare, and monotony, 2049—E
- WAR, Academy of Medicine and, 878, 1043
  - Academy of Sciences and the, 1044
  - American organization for protection of children and girls during, 1044
  - and economics of prescribing in England, 1484—E
  - and public hygiene, 1217
  - apparatus for treatment of fractures in modern, (16) 1508, (27) 1610
  - army medical casualties in, 2055
  - bullet wounds in, (24) 1236
  - casualties, 1868
  - casualties and rewards in, 1966
  - cholera and, 1487—E
  - conditions in Paris, 957
  - diseases to be reckoned with during, (40) 1612
  - drug supply and, 586—E
  - dumdum and explosive bullets in, (7) 1883
  - England at, medical notes on, 2303—C
  - English medical service in, 793
  - epidemic diseases during, (48) 1430, (72) 1887, (87) 1888
  - epidemics during, prophylaxis of, 1217, (35) 1266
  - food and alcohol, (88) 1512
  - food for populace during, (67) 1613, (41) 1794
  - health in industry and, value of, 950—E
  - hygiene in, (58) 1430, 1775
  - importation of disease into this country at close of, measures against, 1963
  - infectious diseases during, (53) 1796
  - insects and, (10) 1427, (2) 1507, (3) 1609, (7) 1699, (10) 1793, (9) 1883, (7) 2164
  - medical ethics and regulation of practice of medicine during, (27) 2262
  - medical journals and, 789—E, 957, 1044, 1682
  - medical profession and, 2241
  - medical schools and, 2055
  - mental disease in, (73) 2167
  - military surgery in early weeks of, *2194
  - moral equivalent of, 1385—ab
  - news, danger of, 2062—C
  - news in peace and, 490—E

WAR notes, 957, 1042, 1124, 1216, 1309, 1404, 1490, 1589, 1682, 1774, 1866, 1964, 2053, 2144, 2239
  open-air hospitals in time of, (26) 1428
  orthopedic surgery in, (55) 1795
  physiologic equivalent of, 1415—ab
  preventive medicine and, 873—E
  prisoners in England, rations of, 1124
  psychiatry and, (74) 1703
  quacks in, 1310
  Roentgen rays in, (1) 2075
  sanitary dogs in present, 2055
  transportation, progress in, (100) 1881
  tuberculosis and, (99) 1243
  typhoid and, (1) 2310
  university life and, 1217
  wounds in, advice to surgeons with regard to, 1043
  zone of Europe, supplies needed in, 1590
WARFARE, naval, and nervous system, (122) 1983
  naval, treatment of wounded in, (3) 1058
WARNER'S Safe Remedy, 2246—P
WART: See Verruca
WASHINGTON medical news, 412, 877, 1308, 1681
  state board July report, 1689
WASHROOMS for employees, law requiring, constitutional, 2255—Ml
WASSERMANN REACTION: See Reaction, Wassermann
WASSERMANN reagents, titration of, (38) 273
WASTE: See also Garbage
WASTE, disposal of, (78) 197
  human, sanitary disposal of, (22) 1054
  municipal, advantages and disadvantages of day and night collection of, (3) 802
  municipal, collection of, (2) 802
  municipal, disposal of, by incineration, (123) 1139
  municipal, recoverable value of, (4) 802
WATER, 1112—T
  absorption of medicines when diluted with, 796
  analysis, applications of, (1) 1420
  analysis, classification of bacteria for, (11) 1984
  analysis in sanitary surveys, value of, (2) 1420
  boiled, can be used for saline intravenous infusions in emergencies, (66) 1613
  drinking, bacteriologic standards for, 2294—E
  drinking, hypochlorite capsules for, (10) 1420
  drinking, lead absorption from, 120 cases, (36) 709
  drinking, lime sterilization of, (177) 439
  drinking, safe, 651—ab
  drinking, studies on, (14) 2259
  filtration, biologic and chemical, effect of, (123) 276
  heating of, in camps, efficient method of, (63) 1306
  impounded, and production of malaria, 2158—ab
  incubation test in examination of, (12) 1329
  ingestion, excessive, and excretion of creatin and creatinin, (16) 1427
  mineral, benefit from, in organic disease, (174) 361
  mineral, mode of action of, (49) 811
  mineral, renaissance of scientific study of, (60) 711
  mineral, Swiss sulphur, in eczema, acne, and for surgical bone and joint disease, (34) 1141
  nitrates in potable, determination of minute quantities of, (17) 2159
  of Great Lakes, necessity for restriction and control of sewage pollution of, *1555
  pellagra and, 868—E
  pipes in same trench with sewer pipes, 1872
  pollution and controlling legislation in California, (16) 1788
  pollution and sewage disposal in Minnesota, (24) 1788
  pollution and sewage treatment in Ohio, (26) 1788
WATER pollution in Indiana, (18) 1788
  pollution in Kansas, prevention of, (19) 1788
  pollution in Louisiana, (20) 1788
  pollution in Massachusetts, law relating to prevention of, (23) 1788
  pollution in Virginia, (27) 1788
  purity of, test for, 1048
  quality of, and longevity of pathogenic bacteria, (28) 2159
  rebipelagar in examination of milk and, (145) 1699
  results of mechanical gravity filtration of, at Saskatoon, (117) 1139
  sanitation in Illinois, (17) 1788
  sanitation in Maine, (21) 1788
  sanitation in Montana, present status of, (25) 1788
  sanitation of rivers and harbors, rational basis for, (27) 2159
  Saratoga mineral, (2) 58, (14) 2070
  Saratoga, radio-activity of, 788—E, 795—P
  softening and decolorization, (24) 2159
  softening hard, 1872
  sterilization, liquid chlorin and, 327—E, (46) 2073
  sterilization of drinking, in the field, (8) 1427, (20) 1428, (41) 1510
  sterilization of potable, by calcium hypochlorite, (20) 1508
  supply and sewage disposal, 1582—E
  supply in Paris, 1310
  supply, Little River, decolorization of, in connection with filtration at Springfield, Mass., (26) 2159
  supply of living bodies and hydroadipsia, (101) 970
  supply of troops in India, (21) 1700
  supply, railroad, in Minnesota, 408—E
  supply, state control over drainage conditions and, in Maryland, (22) 1788
  well, colored, inhibiting action of, on bacteria, (18) 2159
  West Baden Sprudel, 1409—P
  White Sulphur, 1870—P
WATER-GLASS, 796
  in preservation of eggs, 883
WATERPROOFING of military clothing, 2145
WEIGHT and measurement of infants and children in private practice compared with institution children and schoolchildren, (1) 1787
  composition of blood and constitution of child's body in relation to nutrition and, (67) 1988
  loss of, in new-born infant not necessary, 404—E, (88) 813
WEINBERG-HECHT reaction control over Wassermann reaction, *240, 263
WEISMANN, death of, 2243
WEST Baden Sprudel Water, 1409—P
  Indian impressions, (79) 708
  Virginia medical news, 412, 1588, 1681
  Virginia state board April report, 798
WESTERN Medical School, Glasgow, (18) 894
WET nurse in hospital practice, *1799
  lactation in, (48) 612
WHEY, effect of, on epithelium of intestines, (63) 516
  modified milk in infant feeding, (2) 1134
WHITE-SPOT disease, *734, (33) 1135
WHITE Sulphur Salts refused recognition by Council, 1870—P
  Sulphur Water, 1870—P
WHITEHEAD operation for hemorrhoids, (83) 1607
WHITMAN'S method for fractured hip, (42) 1981
WHOOPING-COUGH, (179) 361
  cause of, 796
  clinical and sociological aspects of, (8) 1053
  convulsions in, (117) 2082, (120) 2164
WHOOPING-COUGH, endotoxin reaction in, (69) 2079
  epidemiology of, (96) 353
  etiology of, (7) 1053
  hydrobromid of quinin in, 1031
  meningocele complicating, unusual case, (86) 1063
  mortality of, (27) 1237
  recent advances in knowledge, (57) 60
  serodiagnosis of, (5) 887
  treatment of, (104) 892, (9) 1053
  vaccine in prophylaxis and treatment, *1007
  vaccine therapy in, (69) 429, (10) 1054
  vaccine, value of, 796
WIDAL reaction among healthy adult Filipinos, (139) 1698
  reaction and vaccine therapy in typhoid, (47) 1137
WIFE, no damages for mental anguish from physician's failure to attend, 602—Ml
WILL contest case, question of what constitutes insane delusions comes up, 2308—Ml
  pathology of, (120) 1889
WINE, Nourry, refused recognition by Council, 2150—P
WINE OF CARDUI, 258—P, 961—P
  endorsed by Holston Conference of Methodist Church, 2058—P
  libel suit, 1038—E
WINTER SPORTS and health, 1301—E
WIRE extension from heel, (101) 1243
  meteor, to replace platinum wire for bacteriological purposes, 1315
  tourniquet in goiter operations, (119) 511
WISCONSIN eugenics law constitutional, 602—Ml
  medical news, 174, 253, 413, 589, 792, 877, 1041, 1123, 1403, 1588, 1681, 1865, 2142
  state board July report, 2252
  State Medical Society of, (138) 1983
WITNESSES, medical, need not be licensed physicians in state, 1133—Ml
WOMEN, contributions made by, to medical literature, (108) 1138
  doctors' hospital at front, 2056
  hospital for American, in London, 1042
  in medicine, 684
WORK for sake of health, 1118—E
  muscular, and efficiency, 1206—E
  muscular, from heat and energy standpoint, (128) 1890
  treatment of organic diseases, 2254
WORKMAN'S claim for compensation for obesity, 495
WORKMEN'S compensation, (95) 1888
  compensation, abuses of, (122) 520
  compensation acts and medical profession, (58) 969, (171) 973
  compensation and personal-injury suits, refusal to permit operation in its bearing on, (76) 435
  compensation, financial burden of, (95) 1063
  compensation laws, benefits in early treatment seen in workings of, (100) 713
  compensation laws, unfavorable workings of, (101) 980
  compensation legislation, (77) 1432
  compensation legislation, refusal to permit operation from standpoint of, (82) 978
  compensation legislation, workings of, (116) 1244
  compulsory insurance, (38) 2166
WORRY, physiology of, (72) 707
WOUNDED, (45) 1430, 1683, 1866
  and base hospitals, (36) 2166
  at Vera Cruz, (111) 1057
  Belgian, in England, 1966
  care of, (49) 1330, (47) 1430, (84) 2168
  care of, and after sunstroke, (53) 1510
  care of, in field, (78) 1703, (42) 1794
  care of, in Germany, 1866
  care of, in home zone, (42) 1612, (67) 1702, 2054
  dentistry, protheses for, (87) 2080
  dining cars placed at service of, 1589
WOUNDED, evacuation and transportation of, 1684
  experiences with, (69) 2167
  first, received at Munich, (51) 1613
  French, 1589
  French service for care of, (82) 1241
  horse-litter for transportation of, *1476
  in Brittany, 1682
  in naval battles, care of, (3) 1058, (49, 71) 1430
  in transit, society formed to care for, 1492
  in wars since 1850, (91) 1333
  Indian, 1966
  number of, 2146
  orthopedics for, (74) 2167
  prisoners in Berlin, (40) 1794
  Servians, 1965
  slightly, return of, to front, (68) 1796
  soldiers, hydrotherapy and mechanotherapy for sick and, (43) 1612
  soldiers in Austria, organization of welfare work for, 1682
  surgical lessons, (29) 2165
  Swiss physicians and, 1591
  tetanus among, (31) 1794, (43) 1986
  tincture of iodin for application by, 1967
  transportation of, (46) 279, 1490, (33) 1700, 1868, (60, 61) 1885
  transportation of German, 1965
  transportation of, improvement of conditions of, 1591
  transportation of, in France, 1491
  treatment of, 1966
  volunteer assistance for sick and, history of organization in various countries, (112) 1705
WOUNDS, abdominal, penetrating, *1165
  acute emphysematous gangrene, (11) 2261
  antiseptic powder for, before suturing, (95) 813
  cancer on hand after battle, (45) 1330
  character of, 1310
  dumdum bullets, (80) 2079, (17) 2311
  dura, in operation on mastoid process, treatment of, (86) 429
  during 3 weeks' fighting in Flanders, (17) 2261
  electric light in infected gangrenous or torpid, (48) 1701
  epigastric, non-infected, delayed union in, (161) 2070
  eyes, emergency treatment, (45) 1701
  eyes in war, (57) 2264, (12) 2311
  from French projectiles, (41) 1986
  gangrenous, military, treatment of, 1967, 2145
  gunshot, (99) 358, (24) 1236
  gunshot, abdomen, (98) 353, (47) 1060, (50) 1137
  gunshot, abdomen, in war, treatment of, (87) 1333
  gunshot, abdomen, with rupture of pregnant uterus, *243
  gunshot and bayonet, of stomach, (48) 1605
  gunshot, aneurysms caused by, (101) 358
  gunshot, bladder, (91) 1697
  gunshot, blood vessels, (100) 358
  gunshot, bones and joints, (39) 1510
  gunshot, brain, (137) 893
  gunshot, brain, surgical indications in, (103) 359
  gunshot, cavernous plexus, (157) 1699
  gunshot, compression with rubber sponge to arrest hemorrhage from, (77) 1511
  gunshot, cranium, (104) 358
  gunshot, face and neck, (105) 359
  gunshot fractures, dressing for, (61) 1430
  gunshot, gravid uterus, (81) 353
  gunshot, heart, (44) 1142, (89) 1333
  gunshot, heart, distant results of suture, (39) 350
  gunshot, heart, heart block from, (65) 1886
  gunshot, immobilization of fracture from, (53) 1701
  gunshot, infection of, (48) 1061
  gunshot, intestines, (67) 2167

WOUNDS, gunshot, large joints, (108) 359
  gunshot, lungs, (31) 2263
  gunshot, malpractice in treatment of, 800—Ml
  gunshot, nerves, (102) 358, (118) 519
  gunshot, nerves in arms, (24) 2262
  gunshot, skull, experiences with, (55) 2264
  gunshot, spinal cord, (11) 2310, (31) 2311
  gunshot, spine, (103) 1607
  gunshot, spleen, patched with omentum, (49) 1238
  gunshot, stomach, (9) 2310
  gunshot, thorax and abdomen, (106) 359
  gunshot, thorax or abdomen, is operative treatment required, (22) 809
  gunshot, treatment of, (76) 1331, (75) 1511
  gunshot, 200 cases, (95) 436
  healing of, to hasten, (32) 2263
  hot air jet in burns and granulating, (79) 1797
  in war, advice to surgeons with regard to, 1043
WOUNDS, infected, (41) 2166
  intestines, shell and bullet, (3) 2310
  jagged, of rebounding bullets, (46) 2077
  jaws, dental prothesis for, (71) 1886
  joints and fracture of bones during Balkan war, (28) 1059
  massage in after-care of fractures and, (51) 1701
  nerves, surgical treatment, (21) 2262
  non-infected epigastric, delayed union in, 1320—ab
  of present campaign, (37) 1700
  of vertex by way of base of skull, (145) 72
  peripheral nerves, during war, (22) 2311
  protector, new self-retaining abdominal retractor, and, (149) 277
  severity of, and speed of bullet, (33) 1794
  septicemia from, in war, (16) 2311
  shell, in modern naval warfare, (29) 1884
  shell, of bladder, (36) 2311
  stab, of brain through base of skull, (73) 711
  stab, of heart, sutured, (172) 439
WOUNDS, sugar and charcoal as dressing for, (165) 361
  suppurating, open treatment for, (77) 2080
  treatment as established by Lister and subsequent modifications, (2) 2261
  treatment of, received in battle, 1868, (1) 2261, (12) 2262
  vaccines in healing of, (90) 275
  various kinds of, in battle, 2242
  varnish in treatment of, (27) 2311
WRIGHT, A. E., recommends typhoid vaccination, 1124
  solution, (71) 197
WRIST, crushing of, (69) 898
  fracture of, (107) 1990
WRITING, letters written upside down and backwards, (18) 967
WRY NECK: See *Torticollis*

X

X-RAYS: See Roentgen Ray
XANTHIN, metabolism of isomer of, and some isomers of methylxanthins, (67) 1232
XANTHOPHYLLS and carotin, fate of, in the body, 1304—E

Y

YANKAUER operation on eustachian tube, end-results, *1576
YAWS: See Frambesia
YEASTS, staining of, by Gram's method, (47) 707
YELLOW FEVER, arsenization to prevent, 689—E
  commission, 2216—ab
  duck as preventive against malaria and, *1203, 1410—C
  endemic in tropical and Atlantic region, (39) 509
  in Brazil, (251) 364
  in Mexico, (17) 1420
  suspects, 1964
YELLOW pigments, natural, occurring in body, 948—E
  plant pigments, carotin and xanthophylls, fate of, in the body, 1304—E

Z

ZADIG, method of, in practice of medicine, (22) 509
ZINC oxid to render finger prints visible, (112) 1064

AUTHOR INDEX

In this Index, as in the Subject Index, the black-face type refers to reading-matter in THE JOURNAL; the light-face to articles in other journals and not abstracted in the Current Medical Literature Department. The asterisk (*) preceding the page reference indicates that the original article appeared in THE JOURNAL. The numbers in parentheses indicate the numbered paragraphs on the pages referred to. The numbers not in parentheses indicate pages.

A

Abbe, R., (64) 606, (56) 806, (154) 972, (105) 2163
Abbe T., (130) 1234
Abbot, E. S., (55) 606, (2) 703
Abbott, E. G., (9) 1788, *2119
Abbott, W. J., (22) 273
Abderhalden, E., (67) 1511
Abel, J. J., (97, 98) 970, (82) 1425
Abell, I., (46) 1137
Abrahams, R., (70) 197, (105) 429, (31) 2160
Abrami, P., (45) 612
Abrams, A., (81) 1326
Achard, C., (33) 810
Achelis, W., (86) 713
Acton, H. W., (14) 709, (3) 1984
Adachi, S., (172) 285
Adam, A., (92) 358
Adam, K., (191) 362
Adami, J. G., 1248
Adams, A. L., (58) 1325
Adams, C., (98) 1881
Adams, H. S., (11) 508, (65) 969
Adams, J. B., (7) 1235
Adams, J. F., (77) 353
Adams, S. H., 2052
Adams, Z. B., (2) 272, (10) 1788
von Adelung, E., (25) 605, (43) 889
Adler, (9) 2310
Adler, E., (57) 1510, (85) 1703
Adler, H. M., (43) 2072
Adler, I., (70) 890
Adolph, W. H., (81) 970
Adolphi, G., (188) 439
Adrian, C., (236) 363
Agassiz, C. D. S., (34) 1885
Ager, L. C., (16) 58
Agnew, J. H., (46) 1055
Agramonte, A., (3) 603
Ahlfeld, F., (174) 235, (107) 814
Aird, J. W., (123) 198
Albahary, J. M., (199) 362
Albanus, (81) 1060
Albee, F. H., (141) 276
Alber, K., (86) 1703
Albert, H., (9) 1420
Alberts, G., (29) 1141
Albrecht, H., (102) 1243, (69) 1886
Albrecht, W., (74) 68
Albro, M., (117) 1882
Alburger, H. R., (58) 606
Alessandri, R., (143) 72
Alexander, A., (59) 2078
Alexander, E. G., (26) 1605
Alexander, E. W., (69) 1056
Alexander, L. D., (24) 273
Alexander, R. C., (32) 2165
Alexander, W., (62) 897
Alexeieff, A., (232) 363
Alford, L. B., *136
Alger, C. K., (168) 973
Alger, E. M., (131) 1328
Allan, G. A., (12) 1236
Allan, R. M., (8) 807, (133) 892, (10) 894, (14) 1508
Allan, W., *395, (140) 431
Allee, W. S., (81) 1790
Allen, C. W., (95, 101) 353
Allen, E. S., (71) 353
Allen, F. M., *939
Allen, I. O., (79, 82) 275, (81) 429
Allen, J. D., 1502
Allen, L. C., (33) 196
Allen, R. A., *185
Alley, J. N., (149) 972
Allison, N., (122) 1882
Allison, W. L., (111) 608
Allport, F., (101) 608, (1) 802
Almkvist, J., (197) 440
Alsberg, L. C. L., (66) 1232
Alstaedt, E., (96) 358
Alt, A., (11) 967
Altschul, W., (47) 1885
Alvarez, W. C., (10) 1503
Amann, J. A., (57) 1331
Ambard, L., (19) 974
Amberg, E., (65, 69) 197
Amberger, J., (75) 68
Ambrose, L., *651
Amenta, F., (103) 1334
Amesse, J. W., 1133, (60) 2161
Amiral, H. H., (45) 706
Ammenhauser, W., (101) 1705
Amoss, H. L., (38) 1135
Amsden, H. H., (67) 2073
Anderes, E., (93) 1704
Anders, J. M., (100) 275, (6) 1323, 1969
Anderson, H. G., (40) 1885
Anderson, J. F., *1, (51) 706
Anderson, J. L., (110) 971
Anderson, R. J., (70, 71) 969
Anderson, V. V., (54) 969, (45) 2160
Andreae, M. P. van D., (88) 1989
Andree, H., (76) 1241
Andrews, E. W., *1065
Andrews, L. E., (79) 509
Andrews, V. L., (25) 1695
Angerer, A., (35) 2311
v. Angerer, O., (76) 1331
Anglesio, B., (103) 2081
Anglin, W. G., (57) 1605
Anitschkow, N., (112) 204
Antipas, A., (118) 519
Antonelli, G., (123) 1706
Anzilotti, J., (47) 66
Apolant, E., (76) 1988
Appelt, O., (31) 1237
Applegate, J. C., (83) 607
Appleman, L. F., (115) 1882
Arcelin, (80, 84) 281, (29) 1059
Archambault, L., (1) 1694
Archibald, E., (41) 1421
Archibald, R. A., (15) 603
Archibald, R. G., (27) 200, (26) 2165
Arganaraz, R., (107) 1064
Argaud, S., (50) 896
Arkin, A., (134) 512, (92) 1056
Arluck, S. S., (121) 1327
Armitage, H. M., (103) 1425
Armstrong, A., (93) 510
Armstrong, G. E., (7) 194, (30) 350, 794, (15) 808, (74) 1056, (42) 1231
Armstrong, J. J. P., (28) 59
Armytage, V. B. G., (23) 1884
Arnaud, L., (48) 66
Arnd, C., (122) 359
Arndt, G., *1268
Arneth, J., (86) 1512
Arnett, J. H., (6) 1604
Arnheim, G., (57) 1795
Arnold, A., (60) 1613
Arnold, E. H., 190
Arnold, J. O., (90) 708, (112) 1234
Arps, G. F., (18) 967
Arrowsmith, H., (61) 197
Arrowsmith, J., (22) 354, 931
Artamonoff, A. S., (252) 364
Artaud, G., (24) 975
Arzt, L., (160) 285, (99) 615
Asch, R., (183) 361, (52) 2166
Aschenheim, E., (157) 284
Aschman, G. A., (126) 63
Aschner, B., (62) 67
Aschoff, L., (48) 1238
Ash, J. E., (9) 603
Ashburn, P. M., (88) 1327
Ashford, M., (97) 429
Ashhurst, A. P. C., (13) 2309
Ashworth, W. C., (141) 199
Askenstedt, F. C., (76) 353
Asplund, G., (91) 1616
Atkinson, J. L., (7) 1328, (90) 1697
Attridge, J. A., (45) 1055
Aubert, (61) 434
Auer, E. M., (67) 352, (11) 1878
Auer, J., (52) 275
Augistrou, R. C., (35) 810
Aulde, J., (82) 1607
Auner, J. F., (59) 275
Austin, A. E., (49) 274
Austin, C. K., (86) 61
Austin, J. H., (72) 890, *944
Autenrieth, W., (42) 1142
Avant, A. L. R., (35) 196
Axenfeld, T., (75) 1703
Axford, W. H., (75) 607
Axhausen, G., (71) 202
Aynesworth, H. T., (156) 1699
Ayres, W., (104) 429
Azara, P., (133) 72, (96) 979

B

Baar, G., (84) 357
Babbitt, J. A., *1822
Babcock, J. W., (86) 1507
Babcock, R. H., (103) 275, (54) 1506
Babcock, W. L., (96) 275
Babcock, W. W., (139) 1235, (92) 1607, (103) 1983
Babitzki, P., (80) 978
Back, I., (41) 1885
Bacon, G., (85) 275
Bacot, A. W., (11) 431
Baehr, E., (5) 1604
Baehr, G., (60) 60
Baekeland, L. H., 1377
Baer, A., (43) 60
Baer, C. A., (139) 1983
Baeslack, F. W., *559
Baetjer, F. H., (15) 803, (33) 2071
Baetjer, W. A., (35) 59, (32) 889, (31) 1788, (53) 2161
Baetz, W. G., (127) 1698
Bagehl, K. P., (25) 1700
Baggerd, (36) 976
Bagnall, E. S., (18) 427
Bahlman, C., (10) 2160
Bahr, K., (137) 283
Bahr, P. H., (7) 708
Bahrdt, H., (227) 363
Bailey, F. W., (94) 892
Bailey, P., *6
Bailey, W. C., (12) 1135, (19) 1230
Baillie, M., 1743
Bainbridge, W. S., (77) 1326
Baird, R., (9) 354
Baker, C. F., (75) 1507
Baker, H. A., (84) 1425
Baker, M. N., 56
Baker, S. J., 56
Bakes, J., (49) 2077
Balboni, G. M., (16) 508, (25) 1880
Balch, F. G., (45) 2072
Balduzzi, A., (68) 1144
Baldwin, J. F., 1418, *2286
Baldwin, L. B., *1744
Baldy, J. M., (115) 1983
Balfour, D. C., (155) 1608
Ball, C. F., *1169
Ball, W. G., (5) 277
Ballance, C. A., (23) 64
Ballard, I. W., (75) 197, (59) 1506, (93) 1507
Ballarin, P., (119) 1706
Ballerin, M., (33) 611
Ballner, J., (107) 359
Ballon, D. H., (53) 1605
Balslev, L., (203) 440
Bamman, F. C., (6) 1420
Bancroft, C. P., (5) 703
Bancroft, F. W., (8) 194, *645
Banister, J. B., (14) 974
Bannerman, W. B., (4) 1984
Barach, J. H., (34) 967
Barbara, B., (75) 812
Barbaro, N., (151) 206, (69) 1144
Barbee, A. B., (90) 892
Barbee, C. M., (95) 1233
Barber, C. H., (16) 354
Barber, M. A., (116) 430
Barber, W. H., (9) 2309
Barbier, H., (36) 514
Barbosa, N., (148) 72
Barbour, H. G., (75) 1425
Barbour, H. V., (76) 1982
Barclay, A. E., (3) 1883
Bard, L., (68) 280
Bardeen, C. R., (2) 1323
Bardes, A., (46) 2260
Bardier, E., (38) 895
Bardswell, N., (2) 512
Barkan, H., (17) 195, (16) 2310
Barker, A. E., (30) 200, (26) 894
Barker, L. F., (1) 703, *929, (32) 1324, (74) 1507
Barker, W. S., (11) 1054
Barling, G., (8) 2075
Barlow, C. A., (122) 2075
Barlow, N., (17-19) 1695, (36) 1789
Barnard, H. E., (2) 1420
Barnardo, F., (7) 64
Barnes, F. M., (81) 197
Barnes, G. E., (113) 892
Barnes, W. S., (158) 1608
Barnett, C. E., *2273
Barney, J. D., (18) 195, (47) 352, *2274
Barnhill, J. F., (26) 1420
Baroni, G., (72) 1614
Barr, H. A., (176) 973
Barr, R. A., (99) 708
Barrett, C. W., (12) 1694
Barrett, J. W., 601
Barrett, M. T., *1746
Barrie, G., (110) 510
Barrington, F. J. F., (11) 2075
Barris, J., (15) 64
Barry, C. C., (27) 1700
Barsieck, W., (94) 614
Barsony, T., (102) 615, (108) 1705
Bartels, C. D., (98) 1514
Barth, A., (100) 436, (26) 1509
Barth, E., (81) 978
Bartlett, F. H., (5) 1787
Bartlett, F. K., (19) 888
Bartlett, P. C., (16) 1230
Bartlett, W., (153) 276, *530
Barton, W. M., (101) 1425
Bartow, E., (1) 1420
Baruch, S., (68) 606
Basco, P., (124) 1706
Bass, C. C., 11, (100) 1982, 2158
Bass, F., *1620, (24) 1788
Bassler, A., *1469
Bastedo, W. A., (111) 198, *715
Bastiaanse, F. S. van B., (100) 980
Bastianelli, R., (113) 814, (12) 2075
Bates, U. C., (149) 276
Bateson, W., (12) 974, (12) 1058
Bathurst, W. R., (19) 605
Batten, F. E., (48) 432, (37) 709, (51) 710, (2) 1791
Baudouin, J. A., (126) 276
Bauer, R., (123) 71
Baughman, G., 1978
Baum, H. L., (62) 1331
Baum, O., (212) 362
Baumann, E., (113) 204
Baumgarten, P., (90) 614
Baur, J., (31) 611
Baxter, G. E., (51) 60
Bazy, (34) 611, (32) 810
Bazy, P., (36) 810
Bazzoni, C. B., (6) 2159
Bean, R. B., (3) 2159
Beard, R. O., (86) 970
Beaumont, W. M., (1) 1507
Beccherle, G., (167) 438
Becher, H., (94, 95) 1242
Bechet, P. E., *563, (92) 1791
Beck, E. G., (150) 276
Beck, J. C., (32) 273, (118) 510, 1500, *1636
Beck, O., (29) 273
Becker, (101) 436
Becker, F., (70) 1430
Becker, H. C., (84) 607
Beckman, E. H., (32) 350, (32) 2260
Beckmann, W., (39) 2263
Beco, L., (20) 809
Bedell, P. S., (20) 1236
Bedson, S. P., (21) 1985
Beebe, H. E., (99) 1234
Beebe, S. P., 191, *769
Beers, A., (86) 1982
Beeson, C. F., *2129
Behan, R. J., (124) 892
Behrens, C. A., (27) 804
von Behring, E., (50, 57) 1885
Beifeld, A. F., *1358, (34) 2160
Beifeld, A. H., (47) 1055
Beitzke, H., (55) 1238
Bell, E. T., (11) 1058
Bell, G. H., (72) 1137
Bell, W. B., (21) 278
Bellis, G. L., (44) 805
Bellizzi, V., (105) 1243
Beloff, N. A., (109) 2081
Benario, J., (135) 360
Bender, X., (31) 975
Benders, A. M., (119) 616
Benedict, A. L., (13) 58, (104) 1881
Benedict, F. G., (17) 426, (31) 605
Benedict, S. R., 192, (35-37) 605
Benestad, G., (116) 714, (88) 813, (109) 1334
Bengsch, (75) 1060
Benjamins, C. E., (115) 1244
Benon, R., (46) 811
Benthin, W., (135) 283, (180) 286
Benton, G. H., (78) 806
Benzler, J. H., (63) 1987
Beresnegowski, (34) 976
Berezin, V. I., (255) 364, (97) 1989
Berezoff, V., (128) 2170
Berg, A., (47) 1697
Berg, R., (137) 205
Berg, S., (198) 440
Bergeim, O., *11, *909, (35, 36) 1135, (14) 2259

v. d. Bergh, A. A. H., (118) 359
Berghausen, O., (74) 509, (81) 2074
Berglund, H., (116) 814
Bergmann, H., (37) 1141
Bergmark, G., (64) 1988
Bergtold, W. H., (154) 277
Bériel, L., (53) 356
Berkeley-Hill, O. A. R., (21) 2165
Berkowitz, S., (1) 887
Berlin, W. C. K., (89) 275
Berman, L., (16) 887
Bernhardt, M., (117) 359, (58) 897, (13) 2310
Bernheim, B. B., 1785
Bernheim, B. M., (117) 2075
Bernheim-Karrer, J., (121) 436
Bernheimer, S., (57) 2264
Bernstein, E. P., (22) 59
Bernstein, H. S., (3) 58
Bernsten, A., (112) 1334
Berry, C. W., (17) 704
Berry, W. D., (119) 63
Bertein, P., (46) 356, (31) 611, (63) 711
Bertelsen, A., (102) 1990
Bertels, A., (161) 206
de Besche, A., (115) 714
Best, F., (61) 1331
Best, W. H., *375
Betke, H., (43) 2263
Betz, F. M., (118) 205
Beumer, H., (224) 363, (100) 1705
Beuttenmüller, H., (49) 1510
Bevacqua, A., (74) 1797
Beyer, H. G., (99) 1881
Bezançon, F., (30) 65, (21) 1141
Biach, P., (105) 713
Bianchi, E., (165) 438
Bianchi, G., (107) 1888
Bianchi, L., (58) 2264
Bianchi, V., (97) 1888
Bichler, H., (147) 438
Bickel, O., (67) 1060
Bickers, E. E., (73) 275
Biebesheimer, G. A., (29) 1135
Biedert, C. C., (103) 2163
Bienfait, (28) 809
Biernacki, J., (21) 513
Bierring, W. L., (54) 197, *1731
Biette, L., (9) 974
Biffis, P., (246) 363
Biggs, H. H., (53) 1231
Biggs, M. H., (129) 1234
Bigland, A. D., (43) 432, (46) 709
Biilmann, H. S., (101) 1514
Bilancioni, G., (108) 1888
Bilina, A. Z., (118) 1889
Billeter, A., (89) 203
Billings, F., *899, (50) 1325, *2024
Bine, R., (31) 1231
Binney, H., (22) 1980
Binnie, J. F., (24) 967
Bircher, E., (73) 812, (34) 1141
Bird, F. D., (10) 431
Bird, M. D., (74) 1790
Bird, W. E., (62) 1606
Birdsall, E., (118) 1698
Birdsall, J. C., (84) 1057
Birt, A., (51) 1605
Birt, E., (58) 1060
Bischoff, C. W., (126) 436
Bisgaard, A., (92) 435, (106) 980
Bishop, F. W., (53) 1423
Bishop, L. F., 270, (129) 971
Bissell, F. S., 1420
Bissell, J. B., (83) 353, (55) 2261
Bitting, N. D., (106) 1507
Bittorf, A., (18) 2311
Bjorum, M. V., (130) 1890
Black, H. A., (28) 509
Black, J. H., *2126
Blackfan, K. D., (6) 1787, (2) 2308
Blacklock, B., (11) 199
Blackstein, S., (32) 1428
Blackwell, E. M., (103, 106) 1057
Blair, V. P., *863, (139) 1608
Blaker, G. H., (19) 709
Blakeslee, A. F., (8) 508
Blanchard, R., (48) 201, (31) 810
Bland-Sutton, J., (6) 807, (7, 24) 1793
Blankmeyer, H. C., *321, (57) 1325
Blaschko, A., (44) 1794
Blatherwick, N. R., (64) 61, (62, 70) 1232, (55) 1423
Blatteis, S. R., (105) 970
Blau, A. I., 1223
Blauner, S. A., (110) 354
Blech, G. M., (83) 1327
Blechmann, G., (37) 356, (46) 896
Bledsoe, R. W., (145) 431
Blinder, J., (57) 1137
Bliss, G., (82) 1881
Bloch, B., (28) 2262
Block, S., (87) 275, (98) 608
de Bloeme, P. L. J., (58) 1331
Blohmke, (58) 1885
Bloor, W. R., (59) 1232
Blosser, R., *481
Blühdorn, K., (195) 362
Blum, (116) 359
Blümel, K., (55) 612
Blumenthal, A., (88) 69
Blumenthal, F., (60) 613, (55) 2167
Blumenthal, G., (52) 1885
Blumenthal, N., (98) 1705
Blumer, G., 269, (1) 1053, (30) 1695
Blumfeld, J., (36) 2076
Boardman, W. P., (20) 803
Boardman, W. W., (40) 1696
Boas, H., (265) 364, (81) 1797
Boas, I., (81) 68, (70) 613, (79) 1241
Bock, A. V., (45) 706
Böcker, W., (72) 1060
Bockhorn, M., (35) 1141
Bode, F., (36) 1330
Bodenheimer, J. M., (110) 1607
Bodine, J. A., (75) 1326
Boehme, G. F., Jr., (44) 509
Boeters, O., (77) 1703
Bogan, F. M., (105, 107, 112) 1057
Boggess, W. F., (78) 353
Boggs, R. H., (105) 62, (61) 606, 1321
Boggs, T. R., (44) 273
Bohan, P. T., (76) 1790
du Bois-Reymond, R., (61) 2078
Boit, H., (126) 71
Bojesen, A., (98) 1146
v. Bokay, J., (79) 1703
v. Bokay, Z., (109) 713, (87) 1703
Bolduan, C. F., (77) 1233
Bollag, K., (71) 1240
Bolten, G. C., (95) 518, (118) 1244
Bolton, C., (39) 1700, (28) 1985
v. Bomhard, H., (94) 2169
Bond, C. H., (25) 1793
Bond, G. D., (179) 973
Bondy, O., (185) 362
Bonheim, P., (150) 360
Bonhoeffer, K., (74) 1703
Bonhoff, F., (77) 1060
Bonhomme, (58) 67
Bonifield, C. L., *444
Bonnel, F., (56) 710
Bonnette, P., (46, 47) 1701
Bonney, V., (19) 610
Booker, L. S., (82) 806
Bookman, A., (4) 193, (84) 1063
Bookman, M. R., (133) 971, (5) 1230
Boorstein, S. W., *148
Boot, G. W., 1223
Borchard, A. F., (143) 206, (49) 976, (35) 1237
Borchers, E., (107) 282
Borden, C. R. C., *1563, (103) 1698
Borden, W. B., *1750
Bordet, E., (18) 1059
Bordier, H., (34) 2166
Borsari, G., (96) 1888
Borszeky, K., (145) 206
Bose, J. C., (33) 2165
Bosworth, A. W., (2) 887 (64, 65) 1232, (16) 2259
Böttcher, (130) 205
Boulud, R., (67) 434
Bouquet, H., (50) 356
Boulware, T. C., (75) 2074
Bourquelot, E., (32) 810
Bovée, J. W., (2) 507
Boveri, P., (119) 205
de Bovis, R., (70) 202, (54) 811, (32) 976
Bowditch, H. I., (2) 887
Bowen, W. S., (115) 608
Bower, G. S., (44) 428
Bowers, L. G., (128) 198
Bowers, P. E., (42) 1880
Bowlby, A. A., (2) 2310
Boycott, A. E., (28) 278, (24) 1985
Boyd, G. M., (83) 509, (7) 1230
Boyd, H., (94) 1507
Boyd, H. W., (25) 427
Boyd, J. E., (37) 1325
Boyd, S., (18) 1427
Boynton, W. H., (118-120) 430, (140, 141) 1698
Boys, C. E., (48) 509
Box, C. R., (8) 1139
Braasch, W. F., 1785
Brachio, J. J. A., (18) 1236
Brackett, E. G., (48) 352
Braddon, W. L., (10) 278
Bradley, H. C., (78) 970
Bradley, O. F., (19) 2159
Bradshaw, J. H., (77) 1507
Brahm, C., (41) 1142
Braislin, W. C., (29) 1420
Braithwaite, L. R., (10) 708
Braizeff, V. R., (93) 1989
Bram, I., (111) 1327
Braman, W. W., (68) 1232
Brand, B., (99) 1063
Brandenburg, K., (48) 1430, (53, 59) 1510, (36) 1612
Brandes, (98) 358, (67) 516
Brandt, A. M., (43) 1137
Brandt, A. T., (191) 286
Brandt, K., (168) 206
Brannan, J. W., 348
Bratrud, J., (108) 510
Bratrud, T., 1601
Brattström, E., (76) 517
Brauer, L., (86) 358
Braun, A., (14) 273, (126) 971, (23) 1420
Braun, W., (83) 68
Brausewetter, (76) 1511
Brav, A., *1949
Breaks, L. Z., *866
Breiger, G., (180) 361
Breitmann, M. J., (143) 437
Breitner, B., (104) 358
Brem, W. V., (26) 1980
Bremer, J. L., (3) 1323
Bremerman, L. W., (60) 275
Brend, W. A., (43) 1885
Brengle, D. R., *1157
Brenizer, A. G., (110) 276, (93) 708
Brennemann, J., (43) 428
Brentano, A., (39) 1510
Brereton, G. E., (10) 967
Brette, M., (50) 66
Brettner, H. W., (67) 1702, (40) 1794
Brewer, I. W., (16) 1695, (35) 1789
Bride, T. M., (8) 431
Bridgman, E. W., (21) 1695
Briggs, C. E., (95) 2074
Briggs, L. H., (16) 1323
Brill, A. A., (90) 1425
Brinch, T., (121) 1244
Brind, Z., (24) 1509
Brinsmade, W. B., (90) 608, (21) 1879
Brissaud, (45) 612
Britto, A., (73) 1144
Broca, A., (55) 896, (22) 1059
Brock, A. J., (14) 894, 1120, 1296, 1399, 1447, 1687, 2266
Brock, G. W., (81) 1881
Brockman, D. C., (64) 1606
Brockmann, T., (131) 276
Brockway, P. B., (104) 1234
Brockway, Z. R., (19) 427
Brodhead, G. L., (110) 62, (102) 198, (93) 608
Brodin, (21) 1059
Brodnax, J. W., (92) 708
Brodribb, A. W., (43) 279
Brodribb, C., (19) 1236
Brodsky, C., (48) 612
Broekmeyer, J., (73) 977
Brongersma, H., (235) 363
Bronowichi, G. J., (177) 439
Brooks, B., (122) 1882
Brooks, C. D., (80) 1982
Brooks, H., (98) 198, (67) 509, *1456, (8) 1978
Brosamlen, O., (127) 360
Broughton-Alcock, W., (2) 199, (25) 1428, (23) 1985
Brouwer, G., (102) 980
Brown, A., (52) 889, 1265, (17) 2310
Brown, A. G., Jr., (75) 806
Brown, C. H., (31) 1329
Brown, C. P., *1670
Brown, D. D., (12) 1793
Brown, E. F., (85) 1982
Brown, E. M., (104) 1057
Brown, E. V. L., *225
Brown, F. C., 1131
Brown, G. P., (25) 803
Brown, G. V. I., (15) 1329, (52) 1790, *2106
Brown, H. C., (18) 709
Brown, H. M., (142) 1983
Brown, H. R., (49) 706
Brown, J. M., (27) 1980
Brown, J. Y., (137) 276
Brown, L., (52) 706
Brown, L. P., (98) 708
Brown, L. T., (9) 1135
Brown, O. W., (65) 1326
Brown, P., (10) 1135, (10) 1230, (46) 1605
Brown, P. K., (31) 427, (41) 889
Brown, R., (43) 1697
Brown, S., 1779, (4) 1878
Brown, S. H., (70) 707
Brown, T. R., (25, 27) 705
Brown, W. L., *1670
Brown, W. M., (92) 608
Browne, W. W., (95) 2162
Browning, C. C., (56) 1137
Bruce, G. R., (17) 1508
Bruce, N. R., (96) 708
Bruce, W. I., (4) 1328
Brückner, G., (109, 110) 518
Brukhanoff, P. P., (110) 2081
Brulé, M., (62) 356, (68) 434
Brumbaugh, E. V., (141) 1983
Bruni, A., (73) 1797
Brüning, H., (90) 813
Brunk, O. C., (110) 1426
Brunner, F., (81) 2079
Bruns, O., (177) 361
Brush, F., (84) 1138
Bruyere, 1941
Bryan, R. C., (28) 1605
Bryan, W. A., (120) 510, (149) 1699
Bryan, W. G., (30) 59
Bryant, W. S., (102) 275, (87) 353, (11) 426, (106) 970, (47) 2161
Bryson, A. J., (78) 275
Buberl, L., (148) 284
Bucholz, C. H., *1733, (13, 14) 1788
Buck, L. W., (93) 970
Buck, M. J., (146) 1608
Buckley, C. W., (53) 279
Buckley, J. P., (26) 513
Buckmaster, F., (110) 892
Büdingen, T., (118) 282
Buerger, L., (157) 1608, (123) 1882, (40) 2260
Buford, C. G., (42) 428
Buist, R. C., (8) 894
Bulkley, L. D., (111) 1698
Bull, C. G., (37) 1135
Bull, P., (164) 206
Bullock, E. S., (90) 353
Bullock, W. E., (42) 709
Bulmer, L. C., (110) 2075
Bulson, A. E., 1602
Bum, A., (55) 1795
Bumm, E., (92) 813
Bunce, A. H., (41) 1981
Bunch, G. H., (143) 431
Bunch, J. L., (2) 807
Bundschuh, E., (38) 1330
Bunting, C. H., (36, 37) 59, *2225
Burckhardt, J. L., (70) 68
Burge, W. E., (3) 2258
Burger, H., (96) 1063
Bürgi, E., (128) 436
Burke, R. A., (73) 1790
Burkhart, J. L., (37) 2260
Burkholder, J. F., (60) 1055
Burlingame, C. C., 1692
Burmeister, W. H., (92) 2162
Burnam, C. F., *622
Burnett, E. D., (80) 891
Burnham, A. C., (38) 509, (113) 1327, (143) 1608
Burnham, E. A., (17) 1135
Burnham, H. M., (97) 1425
Burns, D., (16) 1427
Burns, N. B., (13) 194, (11) 1230
Burr, C. W., (1) 1878
Burrows, M. T., 191
Burt, J. M., (166) 973
Burton, A. H. G., (39) 432
Burton, G. C., (32) 706
Burton-Opitz, R., (20) 888, (41) 1604, (7) 2258
Busch, (57) 612
Buschan, G., (70) 1988
Busck, A., (10) 2258
Buswell, C. A., (56) 60
Buth, (114) 204
Butler, C. S., (120) 1983
Butler, E. M., (2) 1787
Butler, H. B., (10) 609
Butler, R., (100) 2163
Butsch, J. L., *1202
Butt, A, P., (92) 1056
Butt, W. R., *549
Butterfield, E. E., (13) 603
Butzner, J. D., *1391
Buxton, L. H., (101) 2075
Byam, W., (19) 64
Byers, W. G. M., *20
Byrd, H., (100) 353
Byrnes, C. M., *2182

C

Cables, H. A., 184, (47) 428
Cabot, H., (9) 1135, 1878
Cabot, R. C., (67) 707, *1461
Cadani, A., (41) 2312
Cadbury, W. W., *1200, *2128
Caddy, A., (12) 354, (22) 610
Cadwalader, W. B., *1380
Caffrey, A. J., 2151
Cahen, F., (45) 2166
Cahier, (64) 434
Cain, A., (20) 1141
Cain, A. W., (50) 1137
Caird, F. M., (2) 2261
Calderini, G., (65) 711
Calderon, F, (134) 1698
Caldesi, T. V., (99) 1334
Caldwell, C. E., (83) 1607
Caldwell, E. W., 1321
Caldwell, G. T., (32) 605, (63) 1232, (70) 1697
Caldwell, R., (42) 2160
Calhoun, F. P., *209
Callender, G. R., (92) 1881, (6) 1978
Calloway, A. W., (130) 198
Calmann, A., (83) 1887
Calmette, A., (37) 895
Calve, J., (7) 1788
Calvert, W. J., (115) 1426
Camerer, C. B., (133) 1983
Cameron, A. T., (66) 969
Cameron, H. C., (7) 513
Cammidge, P. J., (18) 1508, 2053
Camp, C. D., (96) 62, (68) 197, (25) 1054, 1787
Campana, R., (102) 1888

Campani, A., (92) 1514
Campbell, A. E., *2032
Campbell, C. L., (65) 1606
Campbell G., (52) 889, 1265, (79) 1790
Campbell, H., (24) 64, (10) 1609
Campbell, J. L., (85) 807
Campbell, J. S., (101) 708
Campbell, R. P., (14) 1323
Campiche, P. S., (19) 2310
Campora, G., (91) 1063
Campos, E., (71) 1144
Camus, J., (46) 515
Canavan, M. M., (41, 43, 44) 1605
Candler, C. L., (94) 62
Canfield, R. B., (98) 62, (23) 273, (82) 708
Cannaday, J. E., (127) 63
Cannata, S., (106) 1243, (100) 1334, (121) 1706, (92) 1888
Cannon, W. B., 1415
Cano, U., (113) 2170
Cantani, A., (154, 155, 159) 206
Cantelli, O., (112) 615
Cantlie, J., (27) 2165
Canuyt, G., (60) 356
Capell, C., (94) 1327
Capitan, (33) 1794
Capps, J. A., (32, 33) 804, (25) 2071
Carafolli, A., (41) 2312
Carginale, C., (158) 206
Carl, W., (166) 361
Carles, P., (53) 896
Carling, E., (4) 609
Carlisle, C. L., (5) 1878
Carlson, A. J., (92) 970, (4) 2258
Carman, A. R., (36) 2160
Carman, R. D., (18) 350
Carmody, T. E., (79) 197, (85) 429, (29) 509, (102) 2163
Carnelli, R., (162) 438
Caronia, G., (100) 1334, (121) 1706, (94) 1888
Carpenter, E. R., (114) 354
Carpenter, E. W., (62) 197, (146) 431
Carpenter, H. P., (4) 58
Carrel, A., (72) 281, (49-51) 428, (6) 802, (128) 892
Carretier, (40) 514
Carrié, P. A., (23) 1059
Carrieu, M., (69) 280
Carroll, J., *1456
Carroll, R. S., (134) 199
Carslaw, R. B., (20) 432
Carstens, J. H., 1319, 1878, (7) 2070
Carter, C. W., (65) 890
Carter, D., (88) 1607
Carter, E. P., (56) 428
Carter, H. R., (14) 1695, 2158, (129) 2164
Cartlidge, F., (123) 1139
de Carvalho, A., (124) 2170
Carver, A. E., (24) 894
Cary, E., (145) 276
Cary, E. H., (157) 1699
Casali, R., (153) 206
Case, J. T., (80) 61, (147) 276, (65) 509, *1194, 1322, (48) 1325, 1420, (14) 1879, (125) 1882
Casper, L., (47) 515, (84) 979
Casseday, F. F., (97) 1233
Castaigne, J., (40) 611
Castellani, A., (23) 355, (26) 1884
Castellino, P., (92) 2081
Castle, C. H., (84) 1233
Castro, (102) 814
de Castro, A., (89) 1888, (125) 2170
de Castro, S. V., (111) 1064
Cathcart, C. W., (9) 1793, (15) 2165
Cathcart, E. P., (14) 1427
Cattermole, T. E., 1134
Cattle, C. H., (20) 199
Caturani, M., (4) 1694
Cauli, G., (112) 814
Caussade, L., (66) 434
Cauthen, R. S., (97) 1507
Cavaglieri, E., (70) 1614
Cavalli, U., (112) 713
Cealic, M., (36) 65, (38) 810
Cecikas, J., (108) 713
Cecil, R. L., (4) 967
Ceelen, W., (91) 2169
Celli, A., (105) 2081
Ceocalteu, V., (36) 65
Ceriolli, A., (110) 615
Chace, A. F., *945
Chadwick, H. D., (14) 1230
Chalmers, A. J., (19) 64, (13) 1329, (22) 1793, (25) 1884, (26) 2165
Chalmers, A. K., (5) 894
Chamberlain, W. P., (5) 603, (32) 1788
Chambers, T. R., (31) 273
Champion, W. L., (43) 1325
Champneys, F. H., (18) 432, (18) 610
Champtaloup, S. T., (1) 199
Chancellor, P. S., (12) 1053
Channing, W., (24) 1324
Chanutina, M., (115) 70
Chapin, H. D., (4) 887, *1177
Chapman, J. P., (135) 431
Chapman, W. L., *1031
Chaput, (48, 53) 1701, (39, 46) 1985
Charbonnel, J. A., (62) 711
Charles, J. W., (88) 892
Charles, R. L., (31) 196, (59) 352
Chase, W. G., 1688
Chatelin, C., (19) 1141
Chatterjee, G. C., (31) 709
Chauffard, A., (43) 895
Chauvet, S., (45) 515
Chelini, A., (183) 286
Chelle, L., (35) 65
Cheney, W. F., (1) 967, (33) 2160
Cherry, T. H., (111) 354
Chesney, A. M., *1533
Chester, P., (46) 428
Chetwood, C. H., (109) 510, (131) 1882
Cheyne, W. W., (10) 808, (1, 12) 2261
Chiari, O. M., (48) 1885, (98) 2169
Chichkin, A. V., (135) 616
Chickering, H. T., (25) 2259
Chilaiditi, D., (72) 1331
Childress, M., (58) 275
Chipman, C. N., (72) 275
Chisolm, R. A., (31) 278, (44) 432, (47) 710, (5) 1426, (29) 1985
Chorlog, J. K., (132) 63
Chosroleff, G. P., (118) 1889
Chowdry, B. K., (98) 1138, (22) 1236
Christ, C. D., (29) 605
Christen, T., (114) 282, (4) 2075
Christian, M., (60) 1885, (20) 2311
Christiani, A., (193) 440
Christie, W. L., (13) 609
Christman, P. W., (41) 1135
Chrysospathes, J. G., (71) 1060
Church, D. F., (22) 2310
Church, J. R., (84) 1327
Churchill, C. H., (28) 1135
Churchill, F., S., *1799
Churchman, J. W., 268, (9) 1978
Chute, A. L., (8) 1135, (21) 1980, (46) 2161, *2266
Ciampolini, A., 549
Cignozzi, O., (71, 77) 1797
Cilimbaris, (98) 358
Cimoroni, A., (99) 980, (92) 1063, (112) 1889
Cipes, J. S., (117) 971
Ciuffini, P., (82) 1989
Clack, J. M., (127) 512
Claiborne, J. H., (106) 62, (17) 967, (67) 1056
Clarac, G., (35) 1060
Claret, M., (36) 514
Clark, E. E., (69) 1232
Clark, F. H., (113) 1138
Clark, G. B., (117) 1139
Clark, G. F., (98, 99) 1057
Clark, I. G., (93) 2074
Clark, J. B., (113) 198, (7) 2309
Clark, J. G., (2) 349, (1) 1978
Clark, L. P., (32) 59, (105) 198, *1652, (11) 1978
Clark, M. A., (34) 509
Clark, O., *1951
Clark, S., (29) 1700
Clark, S. N., (10) 703, (46) 1880
Clark, T., 2069
Clark, W. L., *925
Clark, W. M., (30) 804
Clark, W. R. P., (38) 889
Clarke, J. M., (17) 199
Clarke, W. C., *645
Claude, H., (75) 281, (65) 434, (17) 1059
Claudius, M., (57) 1613
Clausz, M., (47) 1613
Clay, A. J., (60) 890
Claybrook, E. B., (112) 276
Claypole, E. J., (14) 603, (27, 28) 2071
Claytor, T. A., (133) 512
Clegg, S. J., (38) 1700
Clermont, D., (38) 895
Clifford, H., (19) 1884
Closson, G. L., (92) 1233
Closson, O. E., (72) 1790
Clunet, J., (44) 895
Coates, G. M., *479, (64) 707, (170) 973, (13) 1053
Cobb, C. M., (23) 705
Cobb, F., (34) 59, (19) 1980
Cobb, I. G., (11) 278, (61) 279
Cobb, N. A., (70) 1424
Coble, T. J., (141) 893
Cobleigh, W. M., (25) 1788
Coburn, R. C., (90) 198, 1596
Cockayne, E. A., (38) 709, (3) 893
Cocke, C. H., (10) 1978, 2068, (87) 2074
Cody, H. C., (8) 887
Cody, S. W., (102) 510
Coe, H. C., (66) 806, (125) 1328
Coenen, H., (98) 358, (45) 1330, (35) 1510, (65) 2078
Cofer, L. E., (105) 892
Coffen, T. H., (89) 2074
Coffey, W. B., (49) 889
Cohen, L., (84) 429
Cohen, S. S., (6) 1053
Cohn, I., (118) 2075
Cohn, M., (93) 282, (138) 360
Cohoe, B. A., (44) 968
Colbert, C., (44) 356
Cole, A. M., (38) 196, 1322
Cole, H. N., *1159
Cole, J. C., (83) 1507
Cole, L. G., (15) 426, (38) 1981
Cole, R., (12) 603, (72, 73) 1606
Coleman, W., (73) 197, *932, (41) 968
Coleschi, L., (83) 1989
Coley, W. B., (15) 1879
Collet, F. J., (51) 66
Collie, J., (29) 432, 879, (8) 894, (36) 1700
Collier, C., (115) 2075
Collin, J., (128) 520
Collina, G., (138) 72
Collins, A. N., (47) 1421
Collins, H. N., (12) 2309
Collins, H. O., *1437
Collins, J., (5) 1604
Collins, M., (60) 429
Collinson, H., *1184
Colt, G. H., (2) 431
Colwell, E. M., (24) 1884
Colyer, J. F., (20) 1329
Comby, J., (55, 58) 434, (37, 41) 514
Comelli, U., (126) 1706
Comfort, C. W., Jr., (25) 2071
Comroe, J. H., *1367
Comstock, A., (43) 2260
Concepcion, I., (123) 430
Concetti, L., (119) 519
Conchoud, P. L., (33) 355
Condamin, R., (53) 811
Condat, (37) 514
Conklin, E. G., 937
Connally, H. F., (177) 973
Connell, R., (40) 432
Connor, F. P., (25) 709
Conos, B., (27) 1428
Conradi, E., (91) 813
Cook, A. H., (18) 605, (121) 1234
Cook, A. R., (14) 199
Cook, P. H., (18) 1230
Cooke, A. B., (49) 1697
Cooke, W. E., (3) 1699
Coombs, C., (8) 199
Coomes, M. F., (64) 275
Coon, C. E., (6) 272
Cooper, E. A., (10) 278
Cooper, G. M., 2068
Cooper, J. T., (80) 708
Cooper, St. C., (56) 1424
Coopernail, G. P., (76) 197, (93) 1056
Copeland, G. G., *1950
Coplans, M., (33-35) 278
Coppock, F. M., Jr., (60) 1790
Corbett, J. F., (105) 510
Corbett-Smith, A., (24) 200
Corbus, B. C., *550, (62) 890, (99) 1138
Corbus, B. R., (42) 1055
Coriat, I. H., (18) 803
Corica, A., (112) 2169
Corner, E. M., (9) 426, (27) 894, (14) 1058, *1069, (6) 2075
Corner, G. W., (111) 971
Cornwall, E. E., (91) 1425
Cornwall, J. W., (11) 1984
Corper, H. J., (19) 888, (90) 2162
Correa, J. C., (153) 72
Corson, E. R., (39) 59
Corson-White, E. P., (72) 61
Corwin, A. M., (73) 1881
Costantini, P., (89) 1063
Costill, H. B., (76) 607
Cotoni, L., (20) 1059
Cottet, J., (39) 895
Cottle, G. F., (126) 1983
Cotton, T. F., (53) 889
Cotton, W., (31) 2076
Coughlin, R. E., (73) 707
de Courcy, W. I., (12) 2165
Courtenay, G. T., (38) 1231
Courtney, B. J., (25) 355
Courtright, G. S., (50) 1697
Courtright, R. O., (11) 272, (11) 1503
Cowan, H. W., (123) 276
Cowdry, E. V., (1) 2159
Cowing, H. A., (99) 970
Cox, R., (29) 1793
Cozzolino, O., (109) 2169
Crabtree, E. G., (25) 1504
Cragin, E. B., *947
Craglietto, V., (141) 72
Craig, C. B., (68) 1137, *2027
Craig, C. F., (41) 273, (18) 1324
Craig, H. M., (98) 429
Craig, W., (10) 708
Cramer, H., (189) 362
Crampton, C. W., (58) 1137, 1970
Crandall, F. M., (102) 353, (35) 1605
Crane, C. G., (88) 429
Craven, J. A., (18) 1788
Crawford, A. C., (73) 1697
Crawford, L. B., (98) 353
Cremer, M. H., (51) 197
Crenshaw, H., (106) 1607
Creswell, C. H., (23) 200
Creyx, (58) 710
Crichton, H., 2211
Crigler, L. W., (69) 509
Crile, G. W., (73) 509, (11) 802, (46) 969, *1335, (118) 1426, 2069
de Crinis, M., (120) 205
Crisler, J. A., (128) 512, (32) 1696
Crisp, W. H., (64) 969
di Cristina, G., (120) 1706, (91) 1888
Cromley, W. A., (124) 1608
Crone, E., (37) 1330
Croner, F., (41) 1510
Cronk, F. Y., (127) 1234
Crook, J. L., (137) 893
Croom, J. H., (16) 64
Cross, R., (98) 892
Crothers, T. D., 339, (60) 1506, (80, 105) 1607, (58) 1982
Crow, G. B., (117) 1983
Crowe, S. J., (16) 1504
Crowell, A. J., (78) 1326, *1387
Crozier, W. J., (2) 2258
Cruet, P., (47) 612
Cruice, J. M., (42) 509
Cruickshank, J., (12) 1883
Cruickshank, J. A., (22) 709
Cruishank, W. J., (107) 62
Crum, W. H., (62) 1506
Csepai, K., (164) 285
Csillag, J. (110) 1705
Cukor, N., (91) 69
Cullen, G. E., (116) 204, (60, 62) 1697
Cullen, G. M., (17) 1700, (14) 2165
Cullen, J. A. P., (2) 609
Cumberbatch, E. P., (24) 1329, (3) 1426, (5) 1883, (3) 2075
Cumming, J. G., (38) 804
Cummings, E., (52) 2073
Cummins, R. S., (39) 889
Cummins, W. T., (31, 32) 427, (49) 889
Cumston, C. G., (51) 811, (14) 887, (103) 1138, (48) 1605, (103) 1607
Cunningham, A. T. R., (96) 1233
Cunningham, J., (21) 709
Cunningham, R. M., 2159
Cunningham, W. P., (106) 275, (61) 806, (66) 2073, (122) 2164
Curl, H. C., (133) 1983
Curle, D., (39) 2076
Curry, D. P., (66) 429
Curtis, A. H., (107) 510
Curtis, H. H., *1922
Cushing, H., (41) 1506, *1515
Cuthbert, F. S., (57) 1232
Cuthbertson, W., (143) 276
Czapek, A., (77) 977
Czerny, V., (45) 1429, (42) 1794, (61) 1885, (29) 2263
v. Czyhlarz, E., (103) 203

D

Dabney, V., (89) 1233, (101) 2163
Dachtler, H. W., (19) 350
DaCosta, J. C., (34) 350
da Cunha, A. M., (72) 1144
Dahlstrom, S., (101) 1146
Dakin, H. D., (61) 60, (65) 61
Dally, J. F. H., (55) 279
Dalton, A. J., *1474
Dalyell, E. J., (30) 1985
Dalziel, T. K., (11) 1236, (19) 1700, (19) 2165
Damianovich, H., (149) 72
Dana, C. L., (111) 1608, (53) 1981
Dandy, W. E., (2) 2308
Danforth, J. M., (54) 1697
Danielopolu, D., (34) 514
Danielsen, W., (79) 1887
Danziger, E., (31) 1421
Darling, B. C., (102) 429
Darling, I. A., (62) 1326, (54) 1981
Darling, S. T., *1290
Darnall, W. E., *391
Darré, H., (45) 895
Daruvala, B. P., (32) 709
Davey, A. F. C., (48) 279
Davidson, A. J., (68) 509
Davies, H. R., (36) 1985
Davies, I. J., (8) 513
Davies, J. R., 348, (86) 1138
Davies, N., (62) 279
Daviess, E. G., (64) 1326
Davis, A. B., (25) 1231
Davis, B. F., (147) 1608

Davis, C. M., *2288
Davis, D. J., (8) 603, (32, 33) 894, (49) 1325, (35) 1504, (26) 2071, (87) 2162
Davis, D. M., (62) 60.
Davis, E. C., (24) 1054
Davis, E. D., (15) 1058
Davis, E. F., (132) 1608
Davis, E. P., (107) 198, *290
Davis, G. R., (128) 63
Davis, H., (13) 1700
Davis, H. I., (72) 1507, (57) 1880
Davis, J. C., (17) 1054
Davis, J. S., *985
Davis, L., *243, (138) 276, (29) 1788
Davis, M., (66) 1697
Davis, M. M., Jr., (53) 969, (114) 971, (74) 1137, (41) 2072
Davis, W. T., (120) 63
Davison, C., (148) 276
Dawbarn, R. H. M., 1872
Dawson, J. W., (19) 1985
Day, A. A., (76-85) 2162
Day, H. B., (19) 513, (12) 609
Day, H. E., (63) 352
Day, J. L., *1026
Day, L. C., (93) 353
Deaderick, W. H., (21) 605, (67) 1137, (85) 1138, (89) 1791
Dean, L. W., (51) 275
Dearman, W. A., (128) 431
Deaver, J. B., (8) 58, *292, (28) 350, (74) 607, 1876
Debenedetti, E., (100) 2081
Debono, P. P., (20) 1793
DeBuys, L. R., *1806
Decherd, H. B., (162) 973
Dederer, C., (46) 1697
Dedichen, (99) 1146
Deeks, W. E., (2-4) 708
De Forest, H. P., (108) 354
De Francisco, G., (113) 713
Deganello, U., (96) 2081
Dehelly, G., (32) 65
Dehio, K., (189) 439
Dehon, M., (70) 280, (51) 433
Dejerine, J., (89) 281
De Kleine, W., 2092, 2224
DeLaney, M. A., (67) 1506
DeLanney, E. L., (64) 1506
Delatour, H. B., (40) 350
Delavan, D. B., (87) 1607
Delbet, P., (38) 1985
Del Diestro, 2156
Delèpine, S., (23) 278, (12) 1329, (1) 1699
Della-Porta, G. L., (248) 363
Delore, X., (48) 66
Delorme, E., (44) 1701, (41, 47) 1985
Delort, M., (58) 202, (37, 38) 356, (46) 896
Delrez, L., (22) 809
Demmler, (19) 2262
Dempster, J. H., 1550
Dench, E. B., (86) 429, (105) 1698
Dendy, A., 1575, 1958, 2159, 2272
Dendy, M., (20) 354
Denis, M., (57) 356
Denis, W., (43-45) 605
Denk, W., (102) 358, (108) 359
Denks, H., (79) 1060
Denman, R., (12) 199
Dennett, R. H., *1991
Dennis, D. N., (39) 2072
Deppe, L., (82) 1887
Derby, G. S., (14) 1135
Dermody, L. A., *1028
Dersca, C. A., (135) 205
Desfosses, P., (54, 56) 1701
Desjardins, F. A., 2249
Desmarest, E., (44) 515
Desnos, E., (79) 281
D'Espine, A., (58) 434, (27) 1237
Dessauer, F., (80) 1331
De Tarnowsky, G., (120) 892
Deutsch, F., (47) 1510
Devine, E. T., (52) 1506, 1545, 1750
Devoto, L., (93) 2081
Dewar, M., (8) 894
Dewar, T., (1) 973
Dewey, K., (86) 2162
DeWitt, L. M., (19) 1504
Dexter, R., 1877
Dey, W. F., 403
Dey, W. P., (28) 605
D'Halluin, M., (55) 1701
Dialti, G., (169) 438
Dick, G. F., (29) 804, *1661
Dick, G. R., *1661
Dick, J. L., (25) 1236
Dickinson, G. K., (71) 197, (113) 2163
Dickinson, R. L., (64) 509, *763
Dickson, E. C., (4) 1787, (23) 1980
Dickson, F. D., (118) 276
Dieck, W., (56) 1885
Diefendorf, B., (47) 2260
Diernfellner, C., (56) 1510
Dieterich, K., (27) 2311
Dieterle, T., (69) 68
Dietrich, H. A., (53) 1060
Dieudonné, A., (58) 1430
Diez, S., (95) 1888
Dighton, A., (21) 273, (50) 279
Diller, T., (12) 426, (51) 1880
Dimitry, T. J., (87) 1138
Dimmock, A. F., (11) 1139
Dimond, L., (6) 2165
Dind, E., (57) 67
Dinkelacker, E., (198) 362
Dinsmore, W. W., (140) 199
Disqué, L., (85) 357
Dittoe, W. H., (26) 1788
Dixon, J. T., (66) 1326
Dixon, S. G., *1025, *1203
Dixon, W. E., (91) 970, (105) 2075
Dobbert, T., (160) 206
Dobbertin, R., (73) 613
Dobrokhotow, M., (48) 811
Doche, J., (57) 710
Dodd, O., (74) 1881
Dodd, V. A., (97) 2074
Dodd, W. J., (20) 1230, 1321
Doederlein, T. J., (119) 892
Dold, H., (21) 1793
Dollear, A. H., (48) 428
Dolley, G. C., (86) 1327
Dollinger, J., (98) 436
v. Domarus, A., (94) 614
Don, A., (3) 1328
Donald, A., (4) 1507
Donaldson, R., (22) 278, (5) 2164
Donelan, J., (28) 1610
Donzelot, E., (59) 356
Doran, W. G., (87) 429
Dorr, W. R., (24) 1980
Dorrance, G. M., (109) 1234
Doty, A. H., (85) 1607
Dougal, D., (8) 431, (21) 1884
Douglas, A., (44) 1885
Douglas, C. C., (19) 1793
Douglas, J. S. C., (8) 1058, (24) 1985
Douglas, S. R., (32) 1700
Douglass, J. H., (90) 62
Douglass, W. H., (97) 1327
Dovaird, D., (4) 967
Dowd, C. N., (88) 608
Dowden, A. P., (77) 275
Dowden, C. W., 1786
Dowden, R., (27) 709
Dowling, J. I., (138) 199
Dowling, O., (125) 198, (120) 1234
Dowman, C. E., (91) 1056
Downey, J. W., Jr., (109) 1698
Dox, A. W., (10) 272, (33) 605, (64) 1697
Doyle, J. A., (173) 973
Drachter, R., (58) 515, (99) 813, (35) 2263
Dracinski, N., (76) 977
Dragotti, (157) 206
Drake, F. I., (47) 1880
Drake-Brockman, H. E., (6) 64
Draper, A. P., (7) 354
Draper, J. W., *1079
Dreesmann, H., (102) 436
Drehmann, G., (50) 976
Drennan, J. G., (89) 708
Dresel, E. G., (59) 1885
Dreyer, L., (144) 206, (112) 519, (90) 1241, (35) 1429
Dreyfus, G. L., (97) 69
Dreyfus, W., (16) 2159
Drinker, C. K., (8) 426
Drinker, K. R., (8) 426
Drum, L., (54) 1605
Drüner, (125) 71
Drury, A. G., (102) 970, (53) 1137, (85) 1233
Druskin, S. J., (5) 1694
Drysdale, H. H., (159) 972, *1283
Duane, A., *721, (34) 2072
Dubin, H., (47) 605
Dublin, L. I., (64) 429, *1739
Du Bois, E. F., *827, (41) 968
Dubois, J., (18) 974
Dubois, M., (27) 809
DuBose, F. G., (84) 807, (113) 2075
Dubs, J., (92) 203
Duckworth, D., (28) 432, (5) 2310
Ducroquet, (32) 1060
Dudgeon, L. S., (35) 709
Dudley, H. W., (61) 60
Dudley, W. H., (28) 1980
Duff, D., (14) 278
Duffy, R., (105) 1507, (66) 2161
Dufour, C. R., (120) 608, 1978
Dufourmentel, L., (23) 975
Dufourt, (49) 66
Duke, J. W., (67) 806
Duke, W. W., (70) 2074
Duker, P. G. L., (263) 364, (105) 1334
Dukes, C. A., (46) 889
Dumitresco, D., (58) 356
Dumont, (55) 356
Duncan, C. H., (63) 1137, (96) 1138
Duncan, W. A., (21) 350
Dunham, K., (22) 1605
Dünkeloh, W., (79) 357, (103) 436
Dunlap, C. B., (2) 1878
Dunlop, H. G. M., (12) 432
Dunlop, J., (117) 608
Dunn, A. D., (6) 967
Dunn, C. H., (24) 605, (1) 1134
Dunn, J. S., (25) 1985
Dunn, J. W., *1050
Dünner, L., (100) 518, (72) 1887, (23) 2262
Dunning, H. S., (60) 197
Dupaquier, E. M., (90) 1138
Dupret, (32) 514
Dupuy, E., (34) 709
Dupuy, H., (51) 1055
Durand, M., (52) 356
Durante, L., (92) 679
Durel, W. J., (84) 1507
Durlacher, S., (79) 2079
Durrah, F. F., (75) 1982
Dutcher, B. H., (28) 200
Duval, C. W., (19) 1324
Duval, P., (31) 514
Dworetzky, A., (153) 360
Dwyer, J. G., (75) 1606, (23) 2259
Dyas, F. G., (146) 276
Dyer, A. W., (20) 709
Dyer, I., *298, (110) 608
Dyer, W. C., (37) 706
Dzerszgowski, S. K., (177) 439

E

Earl, G., (46) 197
Easley, E. P., (59) 1697
Eastman, J. L., *441
Eastman, J. R., (17) 808, (68) 890, 1786
Eastman, O. D., (185) 973
Eaton, C. E., (115) 429
Eaton, P. J., 55
Eaton, W. E., (119) 1983
Ebeling, A. H., (73, 74) 890
Echols, C. M., (131) 63, *370
Eckard, B., (50) 1238
Eckler, L. T., (49) 1137
Eckstein, H., (36) 1429
Eddy, M. P., (23) 427
Edelberg, H., (48) 515
Eden, T. W., (14) 64
Edens, E., (80) 435
Eder, A., (53) 1885, (42) 2263
Edgeworth, F. H., (5) 512
Edie, E. S., (17) 1427
Edington, G. H., (19) 432, (2) 1328
Edlavitch, B. M., *1364
Edridge-Green, F. W., (3) 1139
Edsall, D. L., (18) 1135, (37) 1789
Edwards, D. J., (18) 888
Edwards, T. C., (37) 427
Edwards, W. H., (3) 802
Eggleston, C., *469
Eggstein, A. A., (130) 512
Ehrenfried, A., (4) 272
Ehrenreich, M., (59) 1238
Ehrlich, P., (155) 360, (208) 362
Ehrlich, S. D., (112) 2163
Ehrmann, R., (64) 1238, (48) 1330
Eichel, H., *1029
Eichhorst, H., (169) 361, (88) 713, (53) 1795
Einhorn, M., (89) 429, *1111, (4) 1604, (33) 1981, (56) 1987
von Eiselsberg, F. A., 793, (11) 808, (120) 1882, (84) 2168
Eisen, P., (151) 1328
Eisendrath, D. N., (23) 1879
Eitner, E., (45) 1142
Ekehorn, G., (108) 1990
Ekkert, A. T., (195) 286
Elder, J. M., (36) 1981
Eldred, A. G., (33) 709
Elebash, C. C., (132) 198, (89) 1507
Elias, L. W., (129) 198, (118) 1234
Eliassen, J. B., (126) 520
Eliot, C. W., (27) 1324
Eliot, L., (118) 608
Ellermann, V., (64) 2264
Elliot, R. H., (24) 1610
Elliott, A. R., 1878
Elliott, C. A., *1358
Elliott, C. H., (89) 2162
Elliott, G. R., (104) 1983
Elliott, J. B., Jr., (96) 1425
Elliott, T. R., (1) 354, 1003, (42) 1700
Ellis, A. W. M., (76) 1606
Ellison, G., (78) 509
Ellithorp, R. L., (110) 198
Eloesser, L., (32) 1231
Elsberg, C. A., (36) 967, (27) 1605, 2257
Elschnig, A., (50) 1430
Else, J. E., (145) 1608
Elsner, H. L., (142) 437, (106) 1327, (29) 2160
Elterich, T. J., (88) 510
Eltester, (36) 1141
Ely, C. F., (138) 1328
Ely, L. W., (29) 1980, *2265
Emden, K., (81) 435
Emerson, C. P., (91) 275, (93) 892
Emmert, M., (67) 1606
Emmes, L. E., (31) 605
Emrys-Roberts, E., (3) 63, (29) 278
Emsheimer, H. W., (15) 1323
Enderlen, E., (67) 2167
Engelbreth, C., (201) 440
Engelen, P., (82) 812
Englander, S., (51) 1231, (100) 2074
Englemann, F., (63) 1060
English, D. E., (103) 892
Engstad, J. E., (41) 1506
Engstrand, G., (93) 1616
Ennett, N. T., (57) 1055
Enright, G. E., (35) 889
Eppinger, H., (103) 970
Epplen, F., (111) 429
Epstein, A. A., (60) 61, (71) 1603, *1667
Epstein, J., (7) 507, (39) 2160
Epstein, S., (37) 2160
Erdmann, J. F., (57) 1506, (18) 2070, (3) 2309
Erdt, V., (65) 1430
Erkes, F., (78) 202, (68) 516, (21) 1509
Erlandsen, A., (120) 2082
Erlanger, B., (106) 814
Erlanger, J., (21) 2070
Erlich, M., (61) 977
Ernst, G. R., (150) 1328
Ernst, N. P., (118) 2082, (131) 2170
Ertischek, R., (29) 1880
Esau, (162) 361
Eshleman, C. L., (98) 1982
Eskin, D. A., (98) 1989
Esmein, C., (59) 356
Espersen, G., (122) 1244
Eunike, K. W., (68) 2167, (34) 2311
Eustachio, L., (123) 2170
Eusterman, G. B., 192, (45) 509, (44) 1137
Eustis, A., (9) 194
Evans, A. C., (30) 804
Evans, A. J., (90) 1982
Evans, E., 2063
Evans, G. H., (37) 889
Evans, H. D., (21) 1788
Evans, H. M., (76) 812
Evans, J., *1202
Evans, J. E., (139) 199
Evans, N., (83) 892, (96) 1507
Evans, W. A., (83) 1881
Eve, D., Jr., (129) 512
Eve, F. C., (10) 1507, (11) 1609
Everidge, J., (45) 279
Eves, C. C., (106) 1698
Evvard, J. M., (10) 272
Ewald, P., (89) 69
Ewens, G. F. W., (20) 2165
Ewing, F., (81) 1697
Exchaquet, L., (50) 1986
Exner, A., (85) 614
Eyster, J. A. E., (9) 508
von Ezdorf, R. H., (15) 1695

F

Faber, E. E., (199) 440
Faber, H. K., (9) 887, *1656
Faber, V. L., (111) 1990
Fabian, E., (168) 361
Fabricius, J., (87) 69, (77) 517
Fagin, R., (89) 807
Fahs, C. H., (80) 1233
Fairfield, W. E., (190) 973
Falconer, A. W., (9) 1235, (41) 1700
Falgowski, W., (64) 202
Falk, A., (30) 2263
Falk, J. H. T., (121) 1139
Faller, A., (60) 2073
Falls, F. H., *1172
Falta, W., (121) 205
Faltin, R., (38) 2263
Farani, A., (149) 206
Farbach, H. J., (99) 1607, (57) 1982
Farenholt, A., (78) 197, (101) 1057
Farini, A., (105) 2169
Farmachidis, C. B., (93) 1514
Farmer, A. G., 2062
Farnell, F. J., (37) 1605
Farquharson, A. C., (13) 199
Farr, C. B., (9) 1694, *2214
Farr, R. E., (73) 1233
Farrant, R., (9) 609
Farrer, E. M., (19) 1508
Faschingbauer, H., (161) 285
Fassett, F. J., (42) 352
Faught, F. A., (126) 2164
Faulhaber, M., (89) 614, (68) 812
Fauntleroy, A. M., (112) 1698, (127) 1983
Fauntleroy, P. C., (114) 2075
Fauser, A., (96) 813
Favell, A. L., (134) 276
Favre, M., (39) 810
Fay, A. S., (110) 2163
Fay, O. J., (121) 892, (63) 1606
Fearnsides, E. G., (23) 432, (1) 2164
Federici, N., (152) 206
Federn, P., (121) 971
Federn, S., (111) 1705

Fee, F., (98) 2163
Fegely, W. H., (8) 2159
Fels, J., (175) 361
Felter, R. K., (61) 509
Fenner, E. D., (96) 1982
Fergus, F., (37) 2072
Ferguson, A. R., (19) 513
Ferguson, J. B., (103) 2075
Ferguson, R. H., (56) 890
Fermi, C., (113) 2170
Fernet, (44) 2077
Ferrannini, A., (94) 2081
Ferrarini, G., (135) 72, (178) 285
Ferrata, A., (92) 2081
Ferree, C. E., (63) 1055
Ferrell, J. A., *653
Ferreyra, A., (109) 1064
Ferris, A. W., (2) 58, (93) 429
Ferris, C. A., (60) 969
Ferry, N. S., (19) 278
Fetterolf, G., (6) 1604
Fetzer, (74) 2079
Fibiger, J., (119) 1244, (78) 1432
Fichera, G., (98) 980
Fichera, S., (146) 72
Fidler, F., (15) 2310
Fiche, J., (81) 614
Fiessinger, C., (32) 1794
Fifield, H. L., (74) 707
Figueroa, A., (137) 1882
Fildes, P., (13) 1058, (2) 2164
Findlay, L., (18) 1700
Fine, M. S., *945
Fingerhut, L., (39) 1142
Finizio, G., (108) 1243
Finke, C. H., (104) 892
Finkelstein, B. K., (190) 286
Finlay, R. C., (52) 1981
Finney, J. M. T., *1433
Finsterer, H., (97) 436
Finzi, O., (147) 72
Fiolle, J., (33) 65
Fiolle, P., (33) 65
Fioravanti, L., (168) 438, (173) 439
Fischer, C. E. M., (56) 1880
Fischer, C. S., (71) 1982
Fischer, L., (106) 892, (64) 2073, (120) 2164
Fischer, M. B., (137) 1234
Fish, C. A., (68) 429
Fish, M., (1) 2308
Fishberg, M., (86) 275, (100) 1138, (110) 1327
Fisher, A. G. T., (21) 610
Fisher, C., *751
Fisher, E. D., *1845, (67) 1982
Fisher, I., (51) 2073
Fisher, J. W., (53) 1506, *1752
Fisher, W. C., *2104
Fisichella, V., (108) 2169
Fisk, E. L., (105) 275, 1417
Fiske, C. H., (46) 605, (67) 969
Fitz,, R., (42) 273, (16) 603, (7) 1323, (29) 2071
Fitzgerald, J. G., (21) 1504
Fitz-Simmons, H., (107) 354
Flack, F. L., *2288
Flagg, P. J., *1029
Flandin, C., (25) 1059
Flannigan, C. R., (58) 429
Flatau, G., (80) 1241
Flatow, L., (82) 517
Fleischer, B., (40) 2072
Fleischmann, (89) 2169
Fleisher, M. S., (76, 77) 890, (47, 48) 1789
Fleming, R. A., (13) 2165
Flemming, A. L., (29) 2076
Fletcher, W., (41) 200
Flexner, S., (38) 1135
de Flines, E. W., (106) 1334
Flint, A., Jr., (1) 507
Flint, J. M., 191, 268, 269
Flippin, J. C., 1977
Flockmann, A., (61) 1060
Flörcken, H., (139) 205
Florence, J. H., (109) 608
Flournoy, H., (54) 2161
Flower, N., (10) 1139
Floyd, C., (12) 1230
Flusser, E., (138) 283
Foerster, O. H., *1266, (139) 1983
Foix, C., (33) 810
Foley, E. A., (60) 1880
Folin, O., (43-45) 605, *823
Fonyo, J., (69) 1614
Fonzo, F., (111) 1243
Forbes, A., (20) 2070
Forbes, A. M., (8) 1788, (121) 2164
Force, J. N., (42) 889, (18) 2310
Ford, J. H., (63) 806
Ford, W. E., (109) 198
Ford, W. W., (34) 1324
Fordyce, J. A., *552, (115) 1327
Forman, J., (126) 198
Forni, G., (186) 286
Forrest, E. D., (72) 707
Forsheim, A., (42) 2312
Forster, (89) 517
v. Forster, W., (80) 435
Forsythe, W. E., *1926
Fort, R. E., (140) 276
Fortier, L. A., (97) 1982
Fortner, A. H., (100) 892
Fossler, H., (76) 202
Foster, A. D., 602
Foster, B., (55) 2073
Foster, G. S., (134) 892, (108) 1327, (119) 1426
Foster, M. H., *640, (71) 806
Foster, S. D., (158) 972
Foster, W. D., (68, 72) 1424
Fothergill, W. E., (16, 17) 1884
Fotheringham, J. T., (58) 1605
Foulkes, T. H., (21) 1236
Foust, E. H., (44) 1055
Fowelin, H., (126) 616
Fowler, E. P., (37) 1055
Fowler, F., (16) 199
Fowler, O. S., (31) 509
Fowler, R. S., (126) 1328, (134) 1882, (101) 1983
Fowler, W. A., (70) 806
Fox, H., (37) 967, *2190
Fox, R. F., (40) 2076
Foxworthy, F. W., (100) 1881
Fracker, S. B., (67) 1424
Fraenkel, A., (97) 358, (114) 1705
Fraenkel, E., (203) 362, (98) 1705, (30) 2311
Fraenkel, N., (238, 244) 363
Fragnito, O., (164) 438
Fraikin, A., (34) 65
Francine, A. P., (106) 1234, (58) 2261
Francini, M., (73) 898
Francis, E., (24) 803, *1093, (28) 1504
Francis, L. M., *27
Frangenheim, P., (32) 1141
Frangopoulus, P., (42) 611
Frank, E., (120) 205
Frank, F., (50) 612, (6) 1507
Frank, L., 1878
Frank, O., (217) 362
Frank, R. T., (128) 1882
Frank, S., (58) 1987
Franke, F., (102) 2169
Franke, K., (30) 2311
Fränkel, E., (75) 2079
Frankel, E. M., (63) 60, (40) 605
Frankel, J., (95) 1138
Fränkel, L., (46) 1429
Frankel, L. K., (155) 972, (81) 1982
Frankenberger, C., *655
Frankfurter, O., (163) 285
Frankfurther, W., (66) 1238
Frankland, W. A., (107) 892
Franklin, G. D., (17) 354
Franklin, O. M., (20) 1504
Frantz, J. A., (84) 892
Franz, K., (99) 2169
Franz, N., (62) 1238
Franz, R., (65) 67
Franz, T., (110) 713
Fraser, F. C., (11) 64
Fraser, F. R., (5) 426
Fraser, J., (33) 200
Fraser, J. S., (17) 278
Fraser, M. H., (39) 279
Frattin, G., (134) 72
Frayser, B. H., (8) 2309
Frazer, T., (88) 353, (130) 431, 2068
Frazier, C. H., (5) 194, (97) 198, *287, (15) 1604, (18) 1879
Freeman, G. F., (123) 1983
Freeman, J. A., (82) 891
Freeman, L., (119) 510
Freeman, R. G., (91) 608, (7) 887, (1) 1787, *1802, (13) 1979
Freeman, W. T., (28) 610
Freiberg, A. H., (123) 510, (122) 892, (128) 1608
Freire, O., (115) 1889
Freise, E., (136) 283
French, T. R., (39) 2260
Frenkel, K., (84) 357
Frenzel-Beyme, (127) 436
Frescoln, L. D., *398
Freshwater, D., (31) 894
Freudenberg, E., (63, 64) 516, (87) 1063
Freund, E., (153) 284
Freund, H., (131) 360, (115) 519
Freund, R., (41) 1142
Freundlich, D. B., (86) 607
Frew, D. T. C., (18) 2165
Frey, C. E., (68) 275
Frey, E. S., (62) 275
Frey, R., (68) 68
Freystadtl, B., (62) 613
Freysz, H., (87) 203
Fridericia, L. S., (111) 70, (51) 515
Friedberg, S. A., (27) 273, (20) 1420, (104) 1698
Friedberger, E., (107) 204, (59) 897
Friedel, G., (26) 1059
Friedenwald, J., (101) 275, (15) 803, (2) 1978
Friedjung, J. K., (45) 1510
Friedlaender, P., (60) 1238
Friedlander, A., (5) 887
Friedman, E. D., (117) 1698
Friedman, G. A., (9) 1604
Friedman, H. M., (71) 707, (93) 1881
Friedman, J. C., *380, (51) 1325, (24) 1695, (30) 2071
Friedman, L., (10) 2309
Friedmann, F. F., (136) 360, (63) 897
Friedmann, L., (135) 205
Friedrich, E. P., (33) 2263
Friedrich, P. L., (179) 285, (103) 358, (34) 1237
Friesner, I., (14) 273, (126) 971, (32) 1421
Frisch, A., (56) 2167
v. Frisch, O. R., (101) 358
Fritsch, K., (48) 976, (39) 1237, (63) 1238
Fritz, M., (83) 1512
Fritzsche, E., (33) 1141
Froehlich, E., (40) 1794, (24) 2262, (11) 2310
Fromaget, C., (34) 810
Fromm, N. K., (2) 1694, (90) 1791
Fromme, W., (126) 436
Fronczak, F. E., *1713, (12) 2159
Fronstein, R. M., (259) 364
Fröschels, E., (94) 713
Frothingham, C., Jr., (42) 706, (26) 1695
Frothingham, L., (39) 706
Frühwald, R., (171) 361
Fründ, H., (51) 1266
Fuld, E., (66) 1702
Fülleborn, F., (154) 360
Fuller, E., (89) 1425, *2114
Fullerton, A., (11) 2165
Fulton, J. S., 1872
Funck, C., (63) 1701
Funke, J., (136) 431
Furniss, H. D., (112) 198, 1319, (10) 2070
Fürst, (134) 437
v. Fürth, O., (216) 362

G

Gaarenstroom, G. F., (123) 616
Gaenslen, F. J., (147) 1328
Gahagen, H. J., (59) 1880
Gaillard, A. T., (87) 1425
Gaither, J. G., (83) 807, 1314, 1417
Galambos, A., (143) 360, (85) 2169
Gale, S. S., (121) 2075
Gali, G., (111) 518
Gallagher, J. F., (134) 431
Gallant, A. E., (93) 1607, (86) 1791
Gallavardin, L., (49) 896
Gallegher, E. A., (124) 1698
Galli, D., (129) 616
Galloway, A. R., (1) 973
Galloway, F. W., (95) 1507
Galpern, J., (136) 437
Galt, H. M., (26) 1985
Gamble, J. L., (65) 1697
Gamble, M., (20) 64
Gamblin, T. H., (68) 1326
Gangolphe, M., (46) 356
Ganz, P. S., (63) 275
Garban, H., (62) 356, (68) 434
Garbat, A. L., (14) 426
Gardiner, C. F., 347
Gardiner, J., (90) 275, (125) 2164
Gardner, A. D., (41) 432, (44) 709
Gardner, J. A., (86) 2074
Gardner, S. J., (32) 427, (49) 889
Gardner, W. E., (114) 1327
Gardner, W. S., (132) 512
Garel, J., (29) 1059
Garrett, A. S., (114) 1436
Garrey, W. E., (21) 2070
Garrison, F. H., 342
Garrison, P. E., *1090, (48, 49) 1422, (20) 1695
Garrison, S. P., 1502
Garrod, A. E., (5) 807, (0) 1609
Garton, A. C., (124) 198
Garton, W. M., (128) 1983
Garvin, A. H., (128) 1328
Gary, W. E., (56) 707
Gaskill, H. K., (53) 606
Gastaldi, G., (117) 2170
Gaston, W., (91) 807
Gatti, G., (111) 2169
Gauckler, E., (89) 281
Gaujoux, E., (64) 280
Gaver, E. E., (125) 1608
Gay, F. P., (27, 28) 2071
Gayet, G., (39) 810, (42) 811
v. Gaza, W., (104) 436, (63) 1886
Gearhart, A. P., (104) 2075
Geary, H. L., (93) 1233
Gebb, H., (178) 361
Geelmuyden, H. C., (87) 1797
Gehrmann, A., (55) 1880
Gehrmann, K., (60) 1430
Geigel, R., (122) 205, (74) 1331
Geiger, C., (155) 277
Gelinsky, E., (101) 1243
Gellhorn, G., (80) 275, (95) 1333, (148) 1608
Gelpi, M. J., (95) 1982
Gentili, A., (67) 1144
George, A. W., (11) 701, (86) 1057, 1419
George, J. C., (51) 806
George, W., (16) 2165
George, W. J., (88) 1425
Geraghty, J. T., (109) 892, *2211
Gerber, I., (11) 704, (86) 1057, 1419
Gerlach, W., (48) 2264
Gerrin, M. L., (29) 1324
Gerstenberg, E., (94) 1333
Gerstley, J. R., (57) 60
Gerulanos, M., (102) 358
Géry, L., (17) 1059
Gessner, H. B., (23) 1324
Getman, W. T., (96) 608
Getschell, A. C., (46) 274
Gewin, W. C., (98) 1507
Geyser, A. C., (109) 354
Gfroerer, (69) 1511
Ghoreyeb, A. A., (78) 891
Giamberardino, V., (249) 363
Gibbes, J. H., (125) 1139
Gibbons, E. E., (118) 1882
Gibson, C. L., (37) 350, (54) 1137
Gibson, E. T., (13) 802
Gibson, J., (117) 63
Gibson, R. B., (123) 430, (143) 1698
Giertz, K. H., (72) 1431
Gies, W. J., (46) 1789
Giffen, R. B., (44) 1697
Giffin, H. Z., (9) 58
Gifford, H., (104) 608
Gignoux, A., (29) 1059
Gilbert, G. B., *1098, (32) 2071
Gilbert, O. M., 1229, (59) 1605
Gilcreest, E. L., (134) 1608
Gilcreest, J. E., (175) 973
Gile, J. M., (183) 973
Giles, A. E., (22) 432, 1134
Gill, A. H., (17) 2159
Gill, C. A., (8) 1984
Gilles, R., (66) 711
Gillette, A. J., *1383
Gillis, A. C., *1550
Gill-Noble, M. E., (42) 1605
Gilmer, T. L., *2023
Gilmour, A., (22) 200
Girardet, A., (59) 516
Girling, E. C., (14) 513
Girsdansky, J., (94) 198
Gittings, J. C., 55, (39) 1605
Giuliani, (84) 281
Givens, M. H., (68, 69) 969, (84) 970
Gjessing, E., (125) 1890
Gjessing, H., (118) 714
Glas, E., (122) 283
Glaser, F., (34) 1611
Glaser, O., (75) 2168
Glaser, W., (59) 1613
Glaserfeld, B., (52) 1430
Glaserfeld, D., (87) 614
Glaubermann, J., (63) 1430
Glaze, A. L., Jr., 321
Glazebrook, F. H., (117) 2163
Glen, D., (15) 278
Glénard, R., (60) 711
Gleysteen, D. V., (62) 352
Glinchikoff, V. I., (94) 1989
Glover, E. G., (4) 1699
Glückstahl, A., (43) 611
Glueck, B., (28) 427
Goadby, K., (25) 1610
Gocht, H., (78, 79) 1060
Goddard, C. H., (19) 1604
Goebel, C., (45, 51) 976
Goebel, F., (67) 977
Goebel, W., (107) 359
Goenner, A., (86) 1887
Goepp, R. M., (90) 510
Goetzky, F., (228) 363
Goffe, J. R., (101) 429
Golay, J., (49) 1986
Goldammer, F., (98) 358, (74) 1060
Goldberger, J., 1314
Golden, W. W., (90) 807
Goldscheider, A., (58) 613, (70) 812
Goldschmidt, S., (67) 1232
Goldschmidt, W., (98) 518
Goldsmith, A. A., (10) 194, (52) 1325
Goldspohn, A., *538, 1418
Goldstein, M. A., (99) 2163
Goldstein, S. E., (78) 1233
Goldstone, K. H., (89) 353
Goldthwaite, R. H., (65) 1506
Goldwasser, J., (31) 1428
Goltman, M., (143) 1328
Gompertz, L. M., 190
Gompertz, R., (2) 1609
Good, E. S., (29) 1504
Good, R. H., (124) 971
Goodale, J. L., (18) 1420, (24) 1880
Goodall, A., (42) 200
Goodall, E. W., (42) 1885
Goodall, J. R., (23) 509
Goodhart, S. P., (106) 354, 1976
Goodman, C., (12) 802
Goodman, E. H., (10) 58, (9) 1323, (94, 100) 1425

Goodnough, X. H., (23) 1788
Goodpasture, E. W., (55) 2161
Goosman, C., (54) 1790
Göppert, F., (121) 283, (57) 897, (39) 1794
Gorbakowsky, D., (34) 1428
Gordinier, H. C., (1) 1230, (79) 1697
Gordon, A., (19) 58, (7) 967, (2) 1053, (27) 1054, *1345, (113) 1698, (85) 1791, *1851, (77) 2074, *2282
Gordon, D. G., (3) 277
Gordon, M. H., (33) 1985
Gordon, O., (1) 973
Gordon, T. D., (33) 2260
Gorgas, W. C., (114) 1234
Gortner, R. A., (8) 508
Gosain, C. L., (14) 354
Gosse, A. H., (9) 278
Gossett, W. B., (68) 353
Got, (45) 356
Goto, S., (48) 2077
Gött, T., (197) 362
Gottheil, W. S., (88) 708, *1190
Gough, W., (16) 1610
Gouldesbrough, C., (1) 1426
Goullioud, P. E., (28) 514
Gradle, H. S., (35) 1055, (111) 1882
Gradwohl, R. B. H., *240, (82) 429, (59) 606
Graefe, G., (94) 1704
Graf, P., (48) 2166
Grafe, E., (131) 437
Graff, (54) 1060
v. Graff, E., (58) 1510
Graham, D. W., (92) 275
Graham, E. A., (77) 1056
Graham, E. E., (9) 1053
Graham, W. T., (130) 1698
Graham-Rogers, C. T., (11) 350
Grahe, K., (78) 614
Gramenitzky, M. I., (80) 1614
Grandjean, M., (48) 896
Grant, H. H., (57) 707
Grant, J. A., (101) 510, (40) 1231, (83) 1791
Grant, J. W. G., (26) 355, (30) 432
Grant, L., (7) 894
Grapiolo, F. L., (108) 1064
Graser, E., (75) 1511
Grasseteau, (33) 1329
Grassi, B., (110) 1889
Graves, C. H., (62) 969
Graves, L., (82) 1138, (70) 1507, (87) 1982
Graves, M. L., (158) 277
Graves, W. C., (67) 1880
Graves, W. E., (42) 2076
Graves, W. W., *1707
Gravier, L., (49) 896
Gray, A. L., (83) 197, (12) 704, (39) 1981
Gray, F. D., (15) 2070
Gray, H., (12) 272
Gray, H. M. W., (1) 1058
Gray, T. N., (101) 1327
Graybill, H. W., (73) 1424
Greaves, H. G., (63) 279
Greeley, H., (88) 61, (72) 606, (145) 971, (65) 1137, (107) 1138, (12) 1420, 2151
Green, C. R., (62) 806
Green, E. M., (89) 1881, (55) 1981
Green, J., (16) 967
Green, L. D., (48) 1697
Green, R. M., (37) 1696, (28) 1880, (45) 2072
Greene, C. L., (137) 971, 1692
Greene, J. B., (144) 199
Greene, T. F., (22) 605
Greene, W. H. C., (26) 610
Greener, E. A., (97) 275, (59) 509
Greenough, R. B., (10) 802
Greenwald, I., (68) 61, (50) 1423
Gregg, D., (26) 1324, *1897
Greggio, E., (47) 356
Grégoire, R., (40) 810
Gregory, L., 1419
Greig, D. M., (15) 432, (16) 1700
Greig, E. D. W., (1, 2) 1983
Greil, G. J., (88) 1507
Greinacher, H., (73) 1331
Greve, C., (71) 1886
Grey, E. G., (7) 1135
Griffith, A. H., (4) 1139
Griffith, A. S., (2) 63, (36) 278
Griffith, D. M., (67) 1326
Griffith, J. P. C., (80) 607
Grigsby, G. P., (66) 275, (58) 707
Grimani, (44) 66
Grimm, R. M., *1093
Grinda, E., (86) 281
Grinker, J., *1754, (40) 1880
Grinnan, S. G. T., 1978
Grinstead, W. F., (99) 892
Grisson, (163) 361
Grober, J. A., (71) 68, (106) 204, (66) 613, (74) 812, (70) 977, (72, 83, 87) 1241, (76) 1703, (43) 1794
Groedel, F. M., (123) 283
Groenouw, A., (55) 1885
de Groot, J., (62) 1701
Grosch, P., (80) 614
Gross, L., *656
Gross, M., (83) 357
Grosse, A., (64) 711
Grosshart, R., (130) 1608
Grosz, S., (110) 70
Groszmann, M. P. E., (71) 1880, (127) 2164
Ground, W. E., (135) 63, (192) 973
Grove, E. H., 57, (88) 970
Grove, M. M., 58
Grove, W. E., (187) 973
Groves, E. W. H., (8) 2261
Grubbé, E. H., (90) 429
Gruber, C. M., (13) 1503
Grulee, C. G., (4) 1978
Grumme, F., (38) 1612
Grünbaum, (71) 2167
Grunert, E., (105) 436
Guedel, A. E., 1500
Guernsey, S. C., (10) 272
Guerry, L., (107) 608
Guglialmelli, L., (149) 72
Guibé, M., (65) 202
Guildal, P., (45) 201
Guillain, G., (18) 974
Guillot, M., (32) 65
Guinon, L., (65) 280
Guion, C. M., (68) 969
Guleke, N., (70) 711, (31) 2311
Gulick, A., (83) 970
Gullbring, A., (267) 364
Gümbel, T.,, (67) 812
Gumprich, G., (33) 1428
Gundrum, F. F., (34) 427, (44) 1697
Gunn, J. A., (90) 970
Gunn, J. W. C., (90) 970, (77) 1425
Gunn, W. C., (18) 1984
Gunson, E. B., (24) 610, (4) 1426
Guntzer, J. H., (107) 1698
Gurari, (54) 1143
Gurd, F. B., (127) 276, (31) 804, (50) 1055
Gushee, E. S., (24) 1231
Guterbock, R., (46) 1510
Guthrie, D., (113) 276, *1256
Guthrie, J. A., (112) 1327, (102) 1425
Gutierrez, P., (122) 430
Gutman, J., (103) 970
Gutman, L. G., (127) 2170
Gutmann, C., (42) 1238
Gutstein, M., (54) 1987
Gutzeit, R., (93) 1333
Guye, G., (69) 897
Gwathmey, J. T., (92) 1425, (101) 1881

H

Haas, S. L., (127) 1882
von Haberer, H., (176) 361, (234) 363, (29) 1237, (56) 2264
Häberlin, K., (99) 69, (81) 1887
Haberman, J. V., (75) 2161
Habershon, S. H., (1) 512
Habetin, P., (123) 71
Habhegger, C. J., (148) 1328
Habs, R., (30) 1237
Hackenbruch, (106) 436
v. Hacker, V., (127) 71, (54) 2077
Haehner, (31) 1141
Haendcke, E., (207) 362
Haenlein, O., (49) 1430, (47) 1795
Hafemann, G., (43) 1429
Hage, (96) 282
Hagemann, J. A., (75) 707, (172) 973, (62) 1982
Hagemann, R., (128) 71
Hagentorn, A., (164) 361, (95) 436
Haglund, P., (107) 1990
Hagner, F. R., (122) 1698, (139) 1882
Hague, E. W. J., (132) 276
Hahn, A., (75) 202
Hahn, B., (93) 1242
Hahn, H., (63) 516
Hahn, O., (168) 285
Haig, W., (9) 1507
Haines, E. F., (48) 2160, *2277
Haines, W. D., (52) 806
Halahan, R. E., (34) 200
Hall, D. C., (110) 429
Hall, G. C., (69) 353
Hall, G. W., (87) 1881
Hall, H. J., (22) 705
Hall, I. C., (94) 2163
Hall, I. W., (24) 1428, (31) 1985
Hall, J. K., (116) 1234
Hall, J. N., (11) 58, (2) 1604
Hall, M. C., *242, (71) 1424
Hall, P. M., (5) 802
Hallas, E. A., (100) 1514
Halliday, J., (39) 706
Halsted, T. H., (88) 1791
Halsted, W. S., *207, (30) 889, (22) 1509
Hamann, C. A., (38) 350
Hambleton, B. F., (13) 508
Hamburger, F., (194) 362
Hamburger, W. W., *380, (51) 1325, (30) 2071
Hamer, H. G., (36) 706
Hamill, R. C., (85, 87) 1881
Hamilton, A., (10) 350
Hamilton, A. S., (48) 197
Hamilton, G. V., (7) 1878
Hamilton, H. C., (12) 350
Hamilton, J. M., (182) 973
Hamilton, W. D., (123) 2075
Hamilton, W. F., (52) 1605
Hamm, A., (55) 1613
Hamman, L. V., 348, (33) 2071
Hammes, E. H., *1277
Hammesfahr, (100) 2169
Hammond, F. A. L., (13) 354
Hammond, R. M., (126) 1139
Hampson, W., (2) 2075
Hanan, J. T., (124) 510
Hance, T. B., (28) 709
Handley, W. S., (20) 513
Hands, S. G., (50) 275
Hans, H., (60) 1144
Hansell, H. F., (106) 429
v. Hansemann, D., (101) 203, (32) 1611
Hansen, H., (109) 1[illegible]9
Hansen, P., (17) 178[illegible]
Hansing, W., (49) 1795
Hanson, H., (69) 2161
Hantcher, H., (33) 1060
Happich, C., (56) 1430
Hara, K., (133) 360
Harbaugh, R. W., (35) 427
Harbitz, F., (139) 2170
Harding, H. A., (13) 2159
Hardmann, W. B., (33) 509
Hardy, I., (125) 2075
Hardy, W. F., (15) 967, (82) 1790
Hare, H. A., 2249
Harkness, G. F., (21) 1135
Harkness, R. B., (71) 1790
Harland, G. B., (28) 1700
Harman, N. B., (5) 1139
Harmer, T. W., (14) 803
Harnack, E., (80) 812
Harper, F. S., (16) 513, (23) 1793
Harper, P., (23) 894, (23) 1428
Harpster, C. M., (101) 1234
Harrall, W., (155) 1699
Harrar, J. A., (10) 1694
Harris, H. B., (129) 1608
Harris, H. F., (93) 2162
Harris, M. L., (89) 62
Harris, S., (129) 431
Harris, T. J., (107) 1607, (130) 2164
Harris, W., *1725
Harrison, R. G., 191
Harrison, W. H., (114) 1882
Harrison, W. J., (19) 199
Harrison, V., 1977
Harrold, C. C., (42) 1981
Harrower, H. R., (67) 197, (60) 1987
Harry, P. A., (43) 200
Hart, B., (74) 2161
Hart, C., (59) 613
Hart, D. B., (13) 432, (12) 894, (15) 1700
Hart, E. B., (71) 1232, (15, 17) 2259
Hart, H. H., (33) 1605
Hart, O. A., (92) 62, (78) 708
Hart, T. S., (30) 967, (30) 2160
Hartert, W., (102) 282
Hartley, P. H. S., (31) 200
Hartmann, H., (27) 350, (50) 433, (28) 967, (24) 1059, (50) 1701
Hartshorn, E., (41) 2072
Hartshorn, W. E., 268, (63) 1790, (42) 2260
Hartshorn, W. M., (60) 806, (10) 1054
Harttung, H., (139) 360
Hartung, A., (151) 276
Hartwell, H. F., *142
Hartwell, J. A., (73) 197, (132) 2164
Hartzell, M. B., *230, (74) 1697
Harvey, L. H., (38) 2260
Harvey, W., 1754
Haskell, R. H., (9) 1878
Haskins, C. A., (19) 1788
Haskins, H. D., (50) 1231
Haslam, T. P., (20) 1504
Hastings, C. J., (44) 1231
Hastings, T. W., (54, 55) 428
Hatcher, R. A., *469
Haubold, H. A., (135) 1882
Hauch, (45) 1060
Haughey, W., *1669
Hauke, (98) 358
Haultain, F. W. N., (8) 1507
Haupt, A., (50) 1795
Hauptmann, G., 1861
Hausmann, T., (188) 362
Hauswirth, A., (70) 1702
Hautefeuille, (32) 514
Havens, L. C., (32) 2071
Havero, K., (79) 435
Hawes, J. B., (21) 195, (47) 274, (19) 705, (45) 805, (55) 969
Hawk, P. B., *11, *909, (35, 36) 1135, *2088, (14) 2259
Hawkins, J. A., (95) 1607
Hawley, C. W., (70) 1056
Hawthorne, C. O., (22) 1329
Hayashi, (140) 283, (63) 516
Hayes, J. G., (8) 1328
Hayes, W. M., *483
Hayhurst, E. R., (6) 194, *1570, *2093
Haymen, G., (17) 1141
Haynes, H. H., (92) 807
Hayward, E., (105) 70
Hazen, H. H., *463, (52) 606, (119) 1234, (76) 1697
Heacock, J. H., (95) 198
Head, G. D., (49) 806, *996
Head, H., (1) 2164
Head, J., (100) 1057
Heald, C. B., (21) 2075
Healy, W., (63) 1880
Heath, F. C., 1500
Hebert, P. Z., 2306
Hecht, (67) 1613
Hecht, D., 1877, (62) 2073, (96) 2163
Heddäus, A., (50) 2264
Heddick, L., (10) 1058
Hedin, C. J., (80) 353
Heerfordt, C. F., (159) 72, (202) 440
Heffron, J. L., (57) 969
Hefter, J., (117) 282
Hegner, C. A., (40) 2166
Hehir, P., (17) 1236, (21) 1700
Heiberg, P., (198) 286, (130) 1890
Heidenhain, L., (75) 1331
Heidingsfeld, M. L., *1352, (92) 2074
Heile, B., (37) 1237
Heim, P., (112) 359
Heim, R., (40) 1142
Heimann, F., (51) 1238, (84) 1241
Heimann, H., (15) 58, 132, (6) 887, (7) 1502
Heine, L., (102) 1705, (73) 2079
Heineke, H., (147) 360, (107) 436, (38) 1237
Heinemann, F., (187) 362
Heinemann, O., (63) 613, (38) 1429
Heise, F. H., (52) 706
Heiser, V. G., 165, (117) 430, (68) 1982, (8) 2258
Heisler, A., (46) 1142
Heitger, J. D., (66) 890
Heitz, J., (70) 280, (34) 514, (51) 896, (17) 974
Heitz-Boyer, M., (82) 281
Heizer, W. L., (67) 429
Hekma, E., (122) 616
Hektoen, L., (22) 1504
Helbing, C., (100) 1243
Held, I. W., (94) 429
Heller, E., (69) 357
Heller, J., (94) 1881
Hellier, J. B., (20, 21) 1610
Hellin, D., (144) 284
Hellman, J., (199) 286
Helmholz, H. F., *1371
Helms, J. S., (38) 1325
Helms, O., (140) 2170
Henderson, D. K., (33) 1324
Henderson, M. S., (11) 1788, (27) 2260
Henderson, Y., *318, (25, 26) 888, (83) 1056
Hendon, G. A., (29) 1055, (87, 88) 1697
Hendriks, A., (105) 980
Hendrix, B. M., (60) 1232
*Henes, E., Jr., *146*
Henius, M., (79) 812
Henninger, C. H., (26) 1054
Henrici, A. T., (47) 708
Henriques, A., *651, (53) 1055
Henry, F. C., (102) 1327
Henry, G. R., (29) 804
Henschen, F., (133) 2170
Henschen, K., (85) 203
Henson, G. E., (72) 806, *922, (88) 1138
Henszelmann, A., (107) 713, (52) 1238, (25) 2262
Henze, C. W., (106) 510
Hepburn, W. G., (26) 509
Herbst, R. H., *2219
Hercher, F., (66) 1613
Héresco, P., (38) 810
Herhold, G., (68) 1796
Hering, H. E., (62) 1886, (76) 2079
Herman, W. C., 1410
Hermann, G. J., (69) 1326
Hermel, H., (77) 435
Hernaman-Johnson, F., (4) 1883, (20) 2075
Hernando, T., (52) 433
Herold, J., (97) 1607
Heron, R. F., (26) 200
Herrenheiser, G., (212) 362
Herrick, F. C., (55) 352, (49) 1231
Herring, H. G., (75) 429
Herrman, C., (22) 59, 132, (138) 971

Herrmann, T., (43) 1330
Herschmann, H., (76) 2168
Hertoghe, E., (86) 1233
Hertz, P., (169) 206
Hertz, R., (61) 977
Hertzell, C., (72) 516
Hertzler, A. E., (13) 802, *2037
Herz, A., (170) 361
Herz, M., (32) 967
Herzberg, E., (47) 2166
Herzfeld, E., (84) 517
Herzog, T., (91) 203
Hess, A. F., (3) 193, (40) 273, *1007, *2176, (1) 2308
Hess, C., (78) 517
v. Hess, C. L., (35) 273, (78) 1425, (66) 2079
Hess, O., (67) 1430
Hess, W. R., (69) 1240, (39) 2166
Hesse, E. R., (258) 364
Hesse, F. A., (109) 359
Hesser, C., (266) 364
Hester, J. H., (75) 275
Hetrick, D. J., (111) 1234
Hetzer, M., (130) 436
Heublein, A. C., (11) 1323
Heubner, O., (222) 363
Heubner, W., (158, 159) 284
Hewat, A. F., (40) 709
Hewat, A. M., (3) 609
Hewetson, S. W., (55) 1605
Hewitt, D. W., (3) 1058
Hewlett, A. W., (24) 2071
Hewlett, R. T., (27) 432, (30) 894
Heyd, C. G., (116) 510, (127) 892
Heymann, E., (42) 1612, (60) 1704
Heyn, L. G., *1004
Hezel, O., (22) 2311
Hiatt, H. B., *395
Hibbitt, C. W., (95) 1697
Hibbs, R. A., (119) 1698
Hickey, P. M., (9) 1230
Hickson, W. J., (72) 1880
Higgens, C., (16) 1329
Higgins, C. H., (135) 276
Higgins, M. E., (108, 111) 1057
Highet, H. C., (35) 1985
Hilario, J. S., (51) 1981
Hildebrand, (49) 1060, (56) 2077
Hildreth, E. A., *1031
Hildreth, E. R., *2289
Hill, E., (57) 890, (137) 1608
Hill, H. W., (130) 276, (17) 350, (48) 806, (118, 124) 1139, (5) 1420, (84) 1697
Hill, L. W., (4) 1134
Hill, R. L., (21) 1604
Hill, T. C., (23) 195
Hiller, C., (51) 1790
Hilliger, G., (87) 813
Hilton, R. A., (41) 2160
Himmelsbach, W., (24) 2310
Hine, L. W., (59) 429
Hinman, F., (34) 273, *2009, (6) 2309
Hinton, W. A., (7) 426
Hirsch, E. F., (88) 2162, *2186
Hirsch, J., (78) 1511
Hirsch, M., (64) 1144
Hirsch, P., (72) 977
Hirschberg, A., (243) 363
Hirschbruch, A., (115) 359
Hirschel, G., (63) 1331
Hirschfeld, B., (101) 713
Hirschfeld, F., (89) 435, (58) 2078
Hirschfeld, H., (120) 70, (97) 203, (93) 517
Hirschstein, L., (58) 1795
Hirshfeld, L., (69) 68, (114) 359, (36) 1060, (75) 1241
Hirst, B. C., (22) 1231
His, W., (40) 1612
Hitchcock, C. W., (49) 509, (78) 1982
Hitchings, F. W., (24) 2259
Hitschler, W. A., (169) 973
Hitzrot, J. M., (87) 708
Hochhauser, E., (46) 805
Hocker, R. T., (63) 1326
Hodges, A., 1977
Hodges, F. M., (111) 2075
Hodgson, E. C., (16) 709
Hodson, R., (8) 708
Hoefnagels, J. P. A., (261) 364
Hoene, (42) 1510
Hofbauer, L., (73) 68, (92) 1242
Hofelder, (156) 438
v. Hoff, G., (82) 1063
Hoffman, C. G., (96) 1697
Hoffman, F. L., (144) 276, (8) 1420, (38) 1789
Hoffmann, A., (39) 976, (54, 66) 1510
Hoffmann, E., (84) 68, (64) 1886
Hoffmann, H., (43, 57) 1060
Hoffmann, H. F. W., (45) 1794
Hoffmann, R., (63) 1796
Hofmann, J. A., *1200
Hofvendahl, (94) 282
Hogan, A. G., (77) 970
Hogge, (24) 809
Hoguet, J. P., *2194
Hohlbaum, J., (76) 357
Holbeck, O., (29) 1509
Holden, F. C., *541
Holden, W. A., *25
Holding, A. F., 192, *741, 1321, (107) 1327, (13) 1879
Holding, A. M., (101) 1425
Holland, A. L., (82) 2074
Holland, E. D., (137) 199
Holland, E. G., 2158
Holland, H. T., (8) 354
Holland, R. A., (81) 353
Holland, W., (114) 714
Hollingshead, E., (73) 607
Hollister, J. C., (29) 427
Holloway, T. B., (8) 967
Holm, V., (200) 440, (141) 2170
Holman, W. L., (39, 41) 804, (24) 1504
Holmes, B., (83) 429, (34) 706, (85) 1425, (81) 1607, (54) 1880, (63) 2073
Holmes, C. R., (60) 1982
Holmes, E. M., (28) 273, (19) 1420, *2097
Holmes, G. W., (13) 704
Holmes, H. F., (48) 706
Holst, P. F., (85) 1797
Holste, C., (66) 1144
Holt, C. S., (58) 1424
Holt, E. E., (164) 973
Holt, L. E., (112) 1608, (12) 1979
Holzbach, E., (97) 813
Hölzel, H., (60) 1613
Holzknecht, G., (2) 1426, (97) 1705, (25) 2311
Homan, G., 183
Honda, K., (78) 1145
Hooker, D. R., (23) 888
Hooker, R. S., (132) 892
Hooton, A., (13) 64
Hopkins, F. G., (29, 36) 200
Hopkins, J. G., (28) 804, (13) 1323
Hoppe, H. H., (76) 61, (55) 806, (100) 970, (52) 1137, (83) 1233, (55) 1790, (66) 1982
Horan, M. J., (93) 1138
Horine, E. F., (74) 275, (98) 1697
Hornabrook, R. W., (54) 279
Horne, J., (15) 974, 1477
Hornor, A. A., (25) 195
Hornsby, J. A., (99) 275, (60) 509, (81) 1137
Horowitz, P., (86) 708, (112) 892
Hörrmann, A., (63) 1144
Horsley, J. S., (27) 196, (40) 1789, 1977
Horsley, V., (3) 431, 879, (8) 1793, (26) 2075
Hort, E. C., (13) 1883
Horton, G. D., (26) 804
Hoskins, R. G., (8) 272, *316, (27) 888
Hoskins, W. D., 1500
Høst, H. F., (117) 714
Hotz, G., (72) 613, (95) 813
Hougardy, A., (25) 809
Houghton, M. W., (96) 429
Houston, W. R., (47) 2073
Howard, B. F., (40) 889
Howard, C. C., (92) 1697
Howard, H. A. H., (18) 1508
Howard, L. O., 2158
Howard, T. L., (63) 969
Howe, L., (108) 2075
Howe, W., (78) 607
Howell, A., (33) 2076
Howell, A. A., (11) 1604
Howell, W. H., (84) 509, (29) 888, (22, 23) 2070, (1) 2258
Howitt, H. O., (40) 1981
Howland, G. W., (24) 509
Howland, J., 132
Howland, J. B., (82) 1982
Howle, P. W., *548
Hoxie, G. H., (62, 77) 1790
Høver, S., (137) 2170
Hubbard, J. C., (22) 195
Hubbard, O. S., (65) 1880
Hubbard, T., (40) 1055
Hubby, L. M., *2220
Huber, (21) 1059
Huber, F., (21) 59, (2) 426, (1) 887
Huber, G. U., *2288
Hudgel, C. R., (91) 2074
Hudson-Makuen, G., (59) 197
Huebner, H., (62) 1510
Huenekens, E. J., (103) 814
Huět, G. J., (93) 1063
Huggins, R. R., (82) 509
Hughes, B., (9) 1427
Hughes, W. F., 1603
Huismans, L., (61) 516
Hulen, V. H., (31) 1980
Hull, A. J., (46) 279
Hull, R. L., (80) 509
Hume, C. R., (69) 806
Hume, W. E., (38) 1700
Humphrey, G. C., (71) 1232
Humphrey, W. O., (28) 1055
Humphreys, G. A., (96) 1607
Humphry, L., (7) 199
Hund, J., (106) 1983
Hunnicutt, J. A., (5) 967
Hunt, J. R., (2) 967
Huntemüller, (50) 1238
Hunter, A., (67) 61, (68) 969, (84) 970
Hunter, G. G., (66) 1790
Hunter, J. H., (128) 1139
Hunter, J. R., (136) 512
Huntington, G. S., (1) 603
Huntington, T. W., (35) 350, (14) 2309
Huntington, W. H., (123) 63, (59) 806
Hupp, F. L., (136) 1882
Hurd, L. M., (133) 1328
Hurry, J. B., (3) 354
Hurty, J. N., 1417, *1720, (58) 1790
Hurwitz, S. H., (12) 194
Hüssy, A., (40) 976
Hussy, P., (241) 363
Husted, M. I., (78) 1137
Hutcheson, J. M., (111) 276, (58) 1055
Hutchinson, R., (1) 277
Huyser, W. C., (93) 62
Hybbinette, S., (107) 1990
Hyde, C. G., (16) 1788
Hyde, F. C., (21) 1324
Hylkema, S. S., (107) 1334
Hyman A., (88) 1056, (101) 2169

I

Ide, (71) 516
Ido, Y., (34) 355
Iglauer, S., *1827
Iles, C. C., (26) 1985
Ill, E. J., *157, (114) 2163
Illuminati, I., (109) 814
Imbert, L., (47) 201
Imboden, H. M., 1228
Imrie, C. G., (27) 1985
Infeld, M., (77) 2168
Infroit, C., (36) 611
Ingals, E. F., (24) 1420
Ingebrigtsen, R., (46) 66, (30) 1141, (86) 1797
Ingersoll, J. M., (31) 706, (61) 707, (30) 1420
Ingraham, C. B., (29) 196, (57) 352
Ipsen, J., (95) 1146
Iredell, C. E., (41) 279
Ireland, R. L., (32) 1055
Irokawa, K., (43) 2077
Irons, E. E., (34) 1504
Irvine, H. G., (23) 803
Isager, K., (97) 282
Isenschmid, R., (99) 1705
Issatschenko, B., (55) 515
Iurevich, V. A., (78) 1614
Ivashenzoff, G. A., (123) 1889
Ivy, R. H., (10) 426, (84) 1057
Iwasaki, K., (50) 2166

J

Jablons, B., (123) 971
Jaches, L., (88) 1056
Jack, H. P., (95) 608
Jack, W. R., (18) 2165
Jackson, C., *1918
Jackson, D. E., (79) 1425
Jackson, E., *718, (106) 2075
Jackson, J., (47) 889
Jackson, J. A., (84) 2074
Jackson, L., (36) 1504
Jackson, R. H., (130) 892
Jackson, R. W., (56) 969
Jacob, J., (48) 1510
Jacobaeus, H. C., (92) 1616
Jacobs, B. R., (11) 1420
Jacobs, C. M., (7) 272, (63) 890
Jacobson, A. C., (7) 609
Jacobson, A. S., (117) 616
Jacobson, C., (30) 605
Jacobson, J. H., 1320, (19) 2070
Jacobson, M. D., (83) 1797
Jacobson, N., (106) 198, (6) 426
Jacoby, A., (80) 1326
Jacoby, M., (61) 897
Jaffé, H., (60) 2167
v. Jagic, N., (217) 362
Jakob, A., (94) 813
Jakobsthal, E., (67) 1886
James, C. S., (69) 1606
James, S. P., (7) 1934
James, T. L., (51) 1423
James, W. M., (1) 708
Jameson, H. L., (6) 1323
Jammé, A. C., (40) 427
Janet, P., (19) 803
Jannin, L., (43) 356
Janowski, W., (87) 2169
Jansen, H., (188) 286, (113) 1334
Janssen, P., (96) 69
Janz, (73) 1060
Jarisch, A., (84) 435
Jarrett, M. C., (26) 195
Jarvis, H. G., (19) 508
Jastram, A. H., (66) 1606
Javal, A., (55) 356
Jayle, F., (54) 896, (36) 2166
Jeans, P. C., 132, (4) 1502, (2) 1787
zu Jeddeloh, O., (99) 713
Jeger, E., (113) 519, (58, 59) 976, (68) 1702
Jehn, W., (82) 203, (66) 1796
Jellett, H., 696, (8) 807, (18) 808, (50) 889, (10) 894, (75) 1056, (5) 1507, (11, 14) 1508
Jellinghaus, C. F., (28) 1231
Jenckel, (78) 711
Jenkins, C. L., *1749, 2151
Jenkinson, E. A., (54) 275
Jennings, A. H., (66) 1424
Jennings, C. G., 349, (35) 2260
Jennings, C. L., (32) 1880
Jennings, J. E., *1030
Jennings, W. B., (128) 2164
Jensen, J., (98) 1514
Jepsen, G., (110) 1334
Jerusalem, M., (221) 362
Jervey, J. W., *151, (108) 608
Jervis, J. J., (34) 894
Jessup, D. S. D., *385
Jex-Blake, A. J., (37) 2076
Joachim, A., (78) 2168
Jobling, J. W., (53) 428, (70) 1606, (43, 44) 1789, *1930
Jochmann, G., (41) 2166, (16) 2311
Johansson, S., (106) 1990
Johnes, H. R., (15) 1979
Johns, C. O., (60) 1232
Johns, F. M., (52) 1055, (82) 1507, (99, 100) 1982
Johnson, C. K., (120) 1426
Johnson, E. J., (32) 1696
Johnson, E. S., (9) 894
Johnson, F. W., (50) 274
Johnson, G. A., (4) 2159
Johnson, G. T., *866
Johnson, H. M., (45) 1137
Johnson, L. J., (13) 350
Johnson, T. A., *2131
Johnson, W., (25, 44, 45) 432, (47, 48) 710
Johnston, A. A., (159) 972
Johnston, C. H., (34) 2260
Johnston, G. C., *747, (26) 1054
Johnston, J. A., (52) 197, (136) 1698
Johnstone, R. W., (16) 610
Jolley, W. A., (62) 2161
Joltrain, E., (45) 612, (42) 895
Jonas, S., (68) 2079
Jones, A. B., (6) 1235
Jones, A. P., (117) 2075
Jones, C. C., (62) 606
Jones, D. F., (20) 1980
Jones, D. W. C., (14) 609
Jones, E. C., (38) 1605
Jones, E. G., (34) 196
Jones, E. O., (118) 1608
Jones, F. S., (77) 1606
Jones, G. C., (46) 1231
Jones, H., (123) 1608
Jones, H. M., (33) 1504
Jones, I., (11) 2261
Jones, J. J., 1693
Jones, J. P., (105) 1138
Jones, R., (1) 63, (21) 64, (12) 808, (138) 1608, (16) 2075
Jones, R. L., (97) 708, (31) 2165
Jones, S. F., (25) 1605, (59) 2161
Jones, W. C., (4) 349, (3) 1230
Jones, W. I., (160) 972
deJong, C., (22) 1135
de Jong, D. A., (29) 514, (83) 517
Jonnesco, V., (66) 357
Joppich, O., (89) 358
Jordan, A. C., (82) 1056, (73) 1326
Jörgensen, G., (113) 70
Joseph, B., (91) 1607
Joseph, D. R., (81) 1425
Joseph, E., (157) 438, (47) 515
Joseph, H., (113) 519
Joslin, E. P., *1836
Joukovsky, V., (191) 439
Joulia, (32) 1329
Jourdanet, P., (53) 66
Jousset, A., (55) 201
Joy, J., (4) 2261
Joyes, C., (113) 1426
Joyner, W. T., (91) 1982
Judd, C. C. W., *313
Judd, E. S., 1600
Judkins, O. H., (112) 608
Judson, A. B., (81) 61
Judson, C. F., (1) 1502
Juettner, O., (53) 197, (91) 708
Juliusburger, E., (89) 1241
Jung, P., (79) 68, (87) 435
Jungano, (38) 66
Jüngling, O., (108) 282
Jurasz, A., (71, 77) 357, (89) 1331, (92) 1333, (49) 1613

K

Kachelmacher, C., (87) 970
Kaempfer, L. G., (85) 353
Kaestner, P., (85) 1331
Kafka, V., (132) 360, (102) 713, (94) 813
Kahane, M., (109) 1705
Kahler, H., (105) 713
Kahlmeter, G., (132) 2170
Kahlo, G. D., (54) 2261
Kahn, A., (112) 62, (90) 1233
Kahn, H., (33) 273
Kahn, M., (39) 967, (105) 1425, (40) 2160
Kaiser, K. F. L., (84) 1887
Kakushkin, N. M., (82) 1145
Kalischer, S., (81) 712
Kaliski, D. J., (5) 1978
Kall, K., (86) 517
Kalser, W., (65) 977
Kamerling, M., (113) 1244
Kaminsky, S., (117) 1889
Kaminura, (36) 355
Kamneff, M. S., (121) 1889
Kanavel, A. B., *1245
Kanda, S., (9) 1503
Kaplan, D. M., (128) 971
Kaplan, I., (180) 439
Kapp, M. W., (74) 1982
Karewski, P., (99) 203
Karfunkel, (102) 518.
Kariya, (35) 355
Karnitzky, A. O., (67) 1988
Karpas, M. J., *766, (90) 1425
Karraker, C. W., (97) 1697
Karsner, H. T., (45) 706, (67) 969
Kartashevsky, E. A., (91) 1145, (107) 2081
Kaspar, F., (99) 436
Kassowitz, K., (48) 1613
Kastan, M., (61) 2167
Katz, R. A., (92) 1145
Katzen-Ellenbogen, E. W., (66) 1880
Katzenstein, M., (84) 812
Kauffer, H. J., (83) 2074
Kauffmann, H. B., (88) 1982
Kaufman, J. B., (118) 1983
Kaufmann, I., (8) 1604
Kaufmann, J., *1104
Kaufmann, K., (62) 516
Kaupe, W., (120) 436
Kayser, (48, 62) 1060
Kearney, H. W., (124) 63
Keene, F. E., *523
Kehoe, H. C., (75) 1881
Keiper, G. F., (16) 273, 1603
Keith, A., (20) 894
Keith, D. Y., (30) 1055
Keitler, H., (107) 1705, (74) 1887
Keller, K., (94) 1138
Keller, R., (90) 203
Kellert, E., *1819
Kelley, E. R., (15) 2160
Kelley, S. W., (51) 352
Kelling, G., (145) 437, (97) 518, (25) 1509
Kellogg, J. H., (101) 1138, (4) 1420
Kelly, H. A., *622, (126) 1882
Kelly, T. J., (12) 1508
Kelso, J. J., (148) 1699
Kempner, A., (80) 712
Kempster, C., (22) 894
Kenan. J., (117) 1234
Kendall, A. I., (32) 1504, (76-85) 2162
Kendall, E. C., (67) 1697
Kendall, W. L., (81) 509
Kenefik, T. A., (107) 1881
Keng, L. B., (15) 513, (11) 974, (13) 1140
Kennedy, A. M., (7) 2310
Kennedy, B., 1499
Kennedy, F., (107) 275, *2001
Kennedy, J. W., (91) 198, (15) 887
Kent, A. F. S., (8) 609, (39) 709
Kenyon, E. L., (58) 890
Keppler, W., (78, 79) 202, (68) 516, (21) 1509, (47) 2166
Ker, C. B., (29) 1329
Kerl, W., (160) 285, (99) 615, (105) 713
Kerley, C. G., 131, (5) 1502, (113) 1608, (14) 1979
Kern, H., (63) 2078
Kerr, C., (17) 432
Kerr, H. H., (125) 63
Kerr, J. M. M., (17) 2165
Kerr, L., (40) 509
Kerr, R. I., (74) 429
Kessel, G., (61) 275
Kessel, L., (42) 968
Ketcham, J., 1500
Key, B. W., (112) 354
Key, E., (104) 1990
Keyes, A. B., (78) 1056, (6) 1230
Keyes, E. L., Jr., (91) 1138, *2217
Keyser, J. S., (54) 1232
Kholzoff, B. N., (130) 616
Kidd, F., (231) 363
Kiefer, G. L., (68) 1790, 2151
Kiel, W., (39) 1429
Kienle, J. E., (46) 2073
Kilduffe, R., Jr., (15) 194
Killian, G., (5) 63, (12) 513, (4) 974
Kilvington, B., (9) 2075
Kimball, A. H., (133) 1234
Kimbell, I., (122) 1234
Kime, J. W., (23) 1135
Kinberg, O., (115) 814
Kindberg, M. I., (62) 202, (40) 895
Kindleberger, C. P., (97) 1057
Kindley. G. C., (143) 199, (116) 1426
King, A. F. A., (118) 63, (114) 608
King, C., (35) 1880
King, C. E., (18) 1604
King, E. F., *2285
King, H. D., (96) 353, (9) 807, (82) 1233
King, J. H., (40) 968
King, W. E., (29) 1788
King, W. F., (43) 196, 341
King, W. W., (20) 1884
Kinghorn, H. M., 349
Kingsbury, J., *563
Kingsley, C. R., Jr., (123) 1327
Kinloch, J. P., (9) 1058
Kinyoun, J. J., (102) 1057
Kiralyfi, G., (51) 1143
Kirby, G. H., (8) 1878
Kirby-Smith, J. L., (40) 1325, (102) 1507
Kirchenstein, A., (95) 282
Kirchmayr, L., (54) 1613
Kirk, J. A., (69) 429, (31) 1055
Kirk, N. T., 403
Kirk, W., 271
Kirmisson, E., (52) 201, (60) 202, (35) 611
Kirschbaum, P., (210) 362
Kirschner, M., (75) 1511
Kisskalt, K., (74) 1241
Kissmeyer, A., (101) 1990
Kite, G. L., (26) 1504
Kjaergaard, S., (163) 206, (138) 616, (120) 714
Klages, R., (145) 360
Klapp, R., (104) 615, (53) 1613
Klein, H., (62) 1987
Klein, S. R., (45) 2260
Kleinberg, S., (15) 1788
Kleinschmidt, H., (77) 68
Kleinschmidt, O., (70, 78) 357
Klemperer, F., (117) 70, (92) 517
Klemperer, G., (88) 517, (73) 1887
Klibanskaya, Z. I., (253) 364
Klieneberger, C., (77) 812, (41) 1238
Kligler, I. J., (37) 804
Klimenko, V. N., (192) 286
Klinger, R., (69) 68, (36) 1060, (75) 1241
Kloeman, L., (63, 64) 516
Klodnitzky, N. N., (79) 1614
Klopfer, E., (195) 440
Klose, E., (80) 1703
Klots, P. S., (87) 1989
Klotz, O., (43) 706, (28) 1738
Knab, F., (10) 2258
Knaggs, R. L., (2) 1699
Knapp, A. B., 1603
Knapp, M. I., (102) 1138, (124) 1327, (106) 1425
Knauer, A., (61) 1326
Knight, C. P., (44) 2260
Knipe, W. H. W., (73) 1507
Kniskern, E. L., (68) 1056
Knoefel, A. F., *866
Knoll, W., (83) 712
Knopf, S. A., 263, (98) 1425, (61) 1506, *1720, (61) 1790, (103) 1881
Knott, I., (63) 2161
Knowles, F. C., *398
Knowles, R., (14) 709, (3) 1984
Knox, J. H. M., Jr., 132, (1) 193
Knox, R. W., (150) 1699
Kobert, E. R., (52) 612
Köbner, E., (76) 613
Koch, F., (78) 1988
Koch, H., (226) 363, (101) 814
Koch, R., (94) 1242
Köcher, A., (53) 2077
Kocher, R. A., (125) 360, (86) 435
Kocher, T., (51) 2077
Kochmann, M., (128) 436, (39) 976, (74) 1988
Kochneva, N. P., (126) 2170
Köck, E., (81) 1331
Koelsch, F., (64) 1430
Koessler, K. K., (64) 890
Koetzle, (65) 1886
Kofler, K., (98) 1243
Köhler, A., (165) 361, (50) 1330, (47) 1420, (33) 1509, (41) 1612, (89) 1704, (69) 1988
Köhler, F., (53) 612
Kohler, R., (210) 362
Kohlmann, W., (81) 806, (54) 1055
Kohlrausch, (29) 2311
Kohnstamm, O., (36) 1794
Kohrs, T., (46) 1330
Kojansky, N. A., (175) 439
Kolaczek, H., (103, 104) 282, (40) 1330
Kolb, K., (69) 2167
Kolde, W., (116) 519
Kolepke, (52) 976
Kolipinski, L., (81) 607
Koljsch, E., (64) 812
Koll, I. S., (56) 1325, 1786
Kollarits, J., (99) 1243
Kolmer, J. A., *729, (25) 803, (114) 1983
Koltes, F. X., (125) 1983
Koltzoff, G. I., (113) 2081
Kondoleon, E., (33) 1700, (116) 1705
König, F., (124) 205, (50) 1613
König, H., (100) 203
Könnecke, W., (129) 360
Konstanoff, S. W., (218) 362, (85) 1145, (96) 1989
Kooperberg, P., (116) 1244
Koopman, J., (124) 520
Kopetzky, S. J., (38) 1055, (27) 1420
Kopitko, G. I., (81) 1614
Koplik, H., *1574
v. Korczynski, L. R., (69) 516
Korencan, (153) 438
Korke, V. T., (12) 708
Kornew, P., (35) 1330
Korotneff, N. I., (132) 616
Korsbjerg, A., (92) 435, (106) 980
Korteweg, J. A., (262) 364, (122) 520, (101) 980, (95) 1063, (77) 1432
Kosmak, G. W., (26) 1231, (114) 1608
Kosminski, E., (85) 1241
Kossinsky, J., (64) 1701
Köster, H., (95) 2169
Kotzenberg, (79) 1060
Kotzevaloff, S. P., (93) 1145
Kouindjy, P., (51) 1701
Kowarschik, J., (74) 1887
Kowitz, H. L., (149) 224
Krabbe, K. H., (128) 520
Kragh, J. R., (170) 206
Krall, G. H., (16) 1420
Kramer, S. P., (84) 275
Kraske, P., (68) 1430
Kraus, M., (87) 2080
Kraus, R., (144) 437, (75) 812, (71) 977, (106) 1064
Krause, J. T., (61) 1137
Krauss, H., (83) 2079
Krauss, R. B., (49) 605
Krecke, A., (51) 1613
Krecke, D., (72) 2167
Kreiss, P., (165, 166) 285
Kreissl, F., 1416
Kreitmair, (80) 2079
Kreuter, E. W., (65) 1796
Krever, A. R., (129) 2170
Krida, A., (1) 58
Krim, R. S., (257) 364
Kristjanson, H. T., *2225
Kriwsky, L. A., (131) 71, (190) 362
Krokiewicz, A., (91) 282
Kromayer, E., (43) 1510
Krönig, B., (56) 1331
Krotoszyner, M., (154) 1608, *2006
Krumbhaar, E. B., (71) 890, (100) 1607, *2214, 2256
Krumwiede, C., Jr., (39) 273, (9) 2159
Krupsky, A., (181) 439
Kruse, W., (91) 614
v. Kubinyi, P., (150) 206
Kubota, (31) 355
v. Kügelgen, R., (89) 1615
Kühlmann, A., (78) 978
Kuhn, F., (32) 2311
Kuhn, P., (125) 436, (43) 2166
Kulbs, F., (79) 1988, (90) 2169
Kulenkampff, D., (41) 1429
Kulka, W., (75) 1887
Kull, G., (184) 439
Kumaris, J., (88) 2080
Kümmel, W., (33) 2263
Kümmell, H., (110) 204, (118) 892, (72) 1056, (37, 39, 46, 52) 1060, (85) 2079
Kunreuther, M., (37) 1510
Kurihara, K., (169) 285
Kusick, J., (127) 616
Küster, H., (64) 1510
Küstner, O., (84) 1241
Kusunoki, M., (82) 712
Kutschera, A., (162) 285
Küttner, H., *1530, (47) 2077
von Kuzmik, P., (23) 967
Kyrle, J., (149) 438

L

Labbé, H., (85) 281
Labbé, M., (31) 65, (45) 811, (23) 1059
Labhardt, A., (106) 615
Lackey, J. B., (146) 1328
Lackey, W. N., (131) 512
Lackner, R. J., (88) 2074
Lacouture, (62) 711
Ladell, R. G. M., (33) 432
LaFetra, L. E., 55, (17) 1979
Laffer, W. B., (126) 1608, (52) 1697
LaForge, F. B., (69) 61, (41, 50) 605
Lafourcade, (30) 1059
La Franca, S., (115) 204
Lagane, L., (54) 356, (52) 1701, (35) 2166
Lagrange, F., (74) 281
Lahey, F. H., (50) 1605, (50) 2160
Lahm, W., (136) 205
Laidlow, J. H., (97) 510
Lake, D. H., (83) 1982
Lake, G. B., (93) 1425
Lamb, A. R., (22) 1695
Lamb, B. H., (27) 1504, *2041
Lamb, D. S., (121) 63, (116, 119) 608, (134) 1234
Lamb, R. S., (139) 1328
Lambert, A., (131) 2164
Lambert, J., (29) 1884
Lambert, R. A., (75) 890
Lambeth, S., (91) 892
Lambie, J. S., (98) 429
Lameris, H. J., (264) 364, (101) 1064
Lamont, J. G., (56) 2073
Lampé, A. E., (11) 204
Lampert, D., (93) 2169
Lancaster, H. M., (25) 509
Lancaster, J. S., *1761
Lancaster, W. B., (134) 971
Landau, A., (106) 518
Landau, L., (40) 1238
Landau, M., (83) 435
Landau, T., (40) 1238
Landis, H. R. M., 347, (13) 1420, (8) 1604
Landis, J. H., (100) 1234
Landon, L. H., (17) 1879
Landsberg, E., (170) 285
Landsberg, M., (87) 713
Lane, C., (15) 1984
Lanford, J. A., (20) 1324
Lang, A., (28) 804
Lange, (50) 515
de Lange, C., (103) 1064
Lange, F., (131) 205, (88) 1331, (74) 2167
Lange, L. B., (78) 1606
Lange, S., (8) 1230
Lange, V. A., (123) 1889
de Langen, C. D., (14) 2310
Langstein, L., (141) 437
Lanman, T. H., (13) 1503
Lansdown, R. G. P., (15) 2075
Lanzarini, F., (97) 1334
Lapage, C. P., (25) 513
Lapat, W., (108) 970
Lapham, M. E., 2068
Lapinsky, M., (113) 282
LaPlace, E., (113) 1983
de Lapouge, C. V., (20) 975
Laquer, B., (88) 1512
Laqueur, A., (43) 1612
Laqueur, W., (128) 283
Lardennois, G., (60) 434
Laroche, G., (21) 1059
LaSalle, L. G., (62) 356
Lasserre, G., (56) 710
Latarjet, A., (45) 66
Laurens, H., (12) 1503
Laurent, O., (66) 202, (28) 1059
Lauritzen, A. G., (114) 1334
Lauritzen, M., (112) 70
Lavinder, C. H., *1093, (28) 1504
Lavrinovich, A. V., (87) 1614, (86) 2169
Law, A. A., (49) 197, (129) 892
Lawatschek, R., 31
Läwen, A., (71, 74) 357, (108) 436
Lawrance, M. C. S., (18) 1329
Lawrence, E. J., (120) 198
Lawrence, F. F., 1878
Laws, G. M., (117) 276
Layman, D. W., (55) 1232
Layson, Z. C., (105) 608
Lazarevic, V., (52) 1143
Lazarus-Barlow, W. S., (10) 1883
Lea, C. E., (16) 432
Lecène, P., (29) 65, (59) 434, (28) 967
Lecha-Marzo, A., (152) 72, (112) 1064
Leclerc, G., (49) 356
LeClerc, J. A., (11) 1420
Le Comte, R. M., *1658
LeCount, E. R., (36) 1504
Le Damany, P., (1) 272, (59) 711, (47) 811
Ledbetter, R. E., (130) 1983
Ledderhose, G., (32) 2263
Lederman, M. D., (28) 1420
Ledingham, J. C. G., (39) 200
Leduc, S., (1) 1383
Lee, F. S., *1625, *2083

Lee, R. E., (8) 2159
Lee, R. I., (7) 426
Lees, D. B., (4) 1328
Leggett, W., (27) 355
Legry, (37) 611
Legueu, F., (83) 281
Lehmann, W., (81) 1703
Lehndorff, A., (64) 977
Lehnert, A., (22) 2262
Leichtentritt, B., (70) 434
Leidy, J., 1872
Leighton, P., (10) 1235
Leighton, W. E., (49) 1789
Leitch, A., (5) 708, (3) 973, (15) 1610
Lejars, F., (55) 811, (33) 976
Leland, J., (58, 59) 976
Leland, R. G., (77) 708
Lemann, I. I., (80) 1507
Lemel, N. J., (85) 1989
Lemierre, A., (68) 434
Lemoine, G., (39) 66
Lemon, F., (1) 2075
Lenger, (22, 26) 809
Lenné, A., (174) 361
Lenoble, E., (33) 514, (16) 974
Lenzmann, R., (102) 70
Leonard, E. F., (41) 1880, 1999, (108) 2163
Leonard, R. D., (60) 1424
Leonhard, J. H., (6) 974
Leopold, J. S., (2) 1134
Leopold, S., (85) 607, *1362
Leo-Wolf, C. G., (24) 59, (58) 1506
Lepehne, G., (90) 435
Lerche, W., *2129
Léri, A., (51) 201
Lermoyez, (45) 612
Leschke, E., (93, 94) 358, (80) 517
Leschly, W., (81) 1797
Lespinasse, V. D., *1916
Lesser, F., (145) 360, (75) 613
Lethaus, H., (35) 1611
Letord, H., (92) 353
Letoux, M., (31) 810
Letulle, M., (63) 202
Leugueu, F., (229) 363
Levene, P. A., (69) 61, (41, 48, 50) 605, (73-76) 969, (85) 970
Levi, W. D., (99) 1697
Levin, I., (66) 606, (122) 1327, (56) 1506, (53) 2261
Levinger, S., (141) 205
Levings, A. H., (134) 63, (96) 1881
Levitin, E. Z., (90) 1881
Levy, A. G., (13) 1427
Levy, A. M., (144) 360
Lévy, L., (67) 434
Levy, L. H., (31) 2071
Levy, M., (119) 70
Levy, R., (54) 976
Levy, R. L., *1946
Levy, W., (40) 1794, (80) 1887
LeWald, L. T., (111) 198, 1419
Lewis, A. C., (100) 708
Lewis, F. O., (63) 707
Lewis, H. B., (39) 605
Lewis, P. A., (49) 605, (39) 1135
Lewis, R. C., 192
Lewis, R. M., (126) 1882
Lewis, T., (31) 1700
Lewisohn, R., (20) 273
Lexer, E., (25) 967, (42) 1794
Leyberg, J., (124) 71
Lhermitte, J., (56) 811
Libby, W., 2125
Libensky, W., (114) 70
Liceaga, E., (5) 1053, (17) 1420
Lichtenberg, A. V., (59) 1144
Lichtenblet, J. W. T., (89) 1989
Lichtenstein, A., (87) 517, (127) 1890
Lichtenstein, P. M., (107) 1983
Lichtwitz, L., (94) 203, (68) 977, (60) 2078
Lichty, J. A., (3) 1978
Liefmann, E., (139) 283
Lien-Teh, W., (7) 1058
Lier, W., (103) 518
Lieske, H., (76) 435, (27) 2262
Lifschitz, J., (5) 2258
Ligabue, P., (93) 979
Light, A. L., (94) 2074
Light, S. F., (142) 1698
Lile, H. A., (131) 1608
Lilienthal, H., (31) 350, (69) 2073
Lillie, R. S., (12) 508
Lind, J E., (99) 198
Lindbom, O., (137) 616
Lindeman, E., *1542
Linden, M. Z., (93) 275
Lindig, P., (41) 1142
Lindner, K., (107) 1705
Lindsay, H. A., (52) 1880
Lindsay, W. S., (36) 1880
Linenthal, H., (39) 1789
Lingenfelter, G. P., (27) 509
Linkenheld, J., (105) 1705
Linn, W., (32) 196
Linnell, R. M., (35) 200
Linthicum, G. M.; (86) 1607
Linthicum, P. H., (56) 1790
Linzenmeier, G., (176) 285
Lipman, W. H., (76) 1137
Lipp, H., (58) 1613
Lippman, (97) 1705
Lister, A. H., (13) 1609
Litchfield, L., *307, (112) 1983
Litterer, W., 1878
Little, A. G., (42) 1325
Little, E. G., (14) 2261
Little, E. M., (40) 279
Little, J. M., Jr., *1287
Little, S. W., (47) 1605
Livierato, S., (102) 2081
Llewellyn, L. J., (6) 1235
Llewellyn, R. L. J., (21) 894
Lloyd, B. J., (113) 1882
Lloyd, H., (98) 510
Lloyd, J. J., (56) 1055
Lobenhoffer, (73) 1511
Lochridge, E. E., (26) 2159
Lockard, L. B., 1133, (21) 1420
Lockhart, H., (145) 1328
Lockhart, R., (81) 891
Lockhart-Mummery, P., (3) 2310
Lockwood, C. B., (1) 1609
Lockwood, C. D., (142) 1608
Lockwood, T. F., (87) 892
Lockyer, C., (17) 1610
Loeb, C., (12) 967
Loeb, J., (19) 2259
Loeb, L., (76, 77) 890, (47, 48) 1789, (11) 2259
Loeb, O., (134) 360
Loeb, V., *2020
Loewy, A., (95) 203, (65) 1702
Loewy, G., (43) 515
Löfberg, O., (103) 1990
Löffelmann, (50) 1060
Logan, W. R., (30) 278
Lohnes, H. R., (116) 1608
Lohnstein, H., (83) 979
Lomer, G., (124) 283
Lomholt, S., (111) 1334
Lommel, F., (124) 436
Lomon, (40) 1985
Long, (26) 1237
Long, C. E., (34) 432
Long, E. R., (85) 435, (19) 888
Long, J. W., (4) 507
Long, T. L., (48) 1880
Loomis, M. M., (108) 1138
Loose, G., (52) 2264
Lopatin, I. N., (122) 1889
von Lopez, L. V., 135
Lord, F. T., (15) 1230
Lorenz, H., (108) 70
Lorenz, W. F., *1093
Losee, J. R., (74) 890, (28) 1231
Lossen, W., (160) 361
Lothrop, H. A., (36) 350
Lothrop, O. A., (50) 969
Lotsch, F., (100) 358
Lougee, J. L., *1576
Loughead, G. W., (18) 58
Love, J. M., (36) 2072
Lövegren, E., (65) 516
Lovellette, C. R., *316
Low, C. E., (61) 2161
Lowdermilk, R. C., *141, 502
Lowenburg, H., *1906
Lower, W. E., *2015
Lowery, J. R., (107) 970
Lowsley, O. S., (11) 2309
Löwy, J., (82) 435, (65) 977, (59) 2167
Lozinsky, A. A., (84) 1614
Lublinski, W., (31) 1611
Lubman, M., (56) 197, (97) 1138
Lucas, W. P., (44) 889
Lucibelli, G., (119) 2170
Luck, B. D., (43) 2160
Luckett, W. H., (10) 2309
Luckhardt, A. B., (4) 2258
Lüders, C. W., (9) 1323
Ludin, M., (92) 2169
Lüdke, H., (67) 2079
Ludlow, A. I., (30) 706
Ludlum, S. D. W., (72) 61
Luke, T. D., (60) 279
Lüken, E. A., (73) 357, (109) 436, (87) 979
Lukins, J. B., (101) 1697
Luna, F., (109) 1243, (102) 1334
Lund, F. B., *1083
Lunn, K., (63) 2264
Lunt, L. K., (12) 272
Lusk, G., *824
Lusk, W. C., (70) 1982
Lutz, S. H., (132) 1328, (25) 1420
Luxembourg, H., (125) 283
Luxenburg, J., (182) 361
Luz, F., (95) 1514
Lyall, H. W., (53, 54) 706
Lydston, G. F., (104) 354, (101) 1607, (125) 1698, (87) 1791, (105) 1881
Lyle, A., (76) 1326
Lyle, H. H. M., *1149
Lyman, C. B., (154) 277, 1229
Lyman, D. R., (79) 1233
Lyman, J. H., 947
Lynch, F. W., (76) 708
Lynch, J. M., (82) 61
Lynch, M. D., (68) 1880
Lynch, R. C., (17) 273, (59) 707
Lynn, W. J., (22) 1324
Lyon, E. P., 1692, *2171
Lyon, J. A., (48) 274, (52) 969, (13) 1230
Lyon, T. G., (24) 2075
Lyons, R., (131) 431
Lystad, H., (88) 1796

M

Mabry, E. W., (140) 893
McAllister, G. W., 1977
McArdle, J. S., (36) 1885
McArthur, A. W., (84) 197
MacArthur, W. P., (9) 708
Mac Ausland, W. R., (87) 1056
McBaine, B. H., (92) 892
McBean, G. M., (35) 1421
McBride, R. E., (104) 1327
McCabe, W. M., (134) 431
McCall, G. D., (97) 892
MacCallum, W. G., (75) 890
McCarrison, R., (5, 6, 12) 1984
McCarthy, F. G., (67) 890
McCarty, F. B., (151) 1608
McCassy, J. H., (19) 967
McCaw, J. F., (143) 971
McChesney, G. J., (15) 2309
McClanahan, H. M., *1758
McCleave, T. C., (3) 1134, *1666, (32) 1980
McClelland, J. H., (54) 509
McClure, C. R., (116) 198
McClure, C. W., (50) 706, (62) 1424
McClure, R. D., 132
McCollum, E. V., 420, (66) 1697, (12, 15) 2259
MacConkey, A., (6) 1699
McConnell, H. W., (22) 894
McCool, J. L., (119) 1608
McCord, C. P., *232, (3) 2070
MacCorison, C. C., (12) 1135
McCormack, E. M., (63) 429
McCoy, J. C., (116) 2163
McCrae, T., 943, 1012
McCready, E. B., (70) 1880
McCulloch, E. C., (87) 1327
McCullough, F. E., (118) 1983
McDonagh, J. E. R., (8, 11) 1699
McDonald, E., (91) 429
MacDonald, J. A., (1) 431
MacDonald, J. B., (30) 1324
MacDonald, T. L., (125) 892
Mace, L. S., (35) 967
McEachern, C. G., 1229
McElroy, J. B., (131) 198
M'Elroy, Z. C., (101) 970
McEwan, J. S., (34) 1880
MacEwen, J. A. C., (20) 1985
MacEwen, W., (20) 278
MacFarlan, D., (55) 197
McGavock, E. P., (131) 1698
MacGilchrist, A. C., (9) 1984
McGinnis, R. H., (67) 2161
McGlannan, A., *1448, (144) 1608
McGlinn, J. A., (66) 509, (152) 1608
McGowan, J. P., (19) 1985
McGrath, B. F., (156) 277, *1012
MacGregor, R. F., (12) 64
McGuigan, H., (35) 273, (78) 1425, *1933
McGuire, E. R., *1202
McGuire, L. W., (121) 1983
McGuire, S., (125) 1234, 2068
McGurn, W. J., (64) 1424
McGurren, C. J., (29) 2260
Machard, A., (67) 1240
Macht, D. I., (69) 1137, (36) 1324, (76) 1425
Machwitz, H., (133) 205
McIlroy, L., (6) 894
McIntosh, J., (13) 1058, (2) 2164
McIntosh, J. W., (45) 60, (99) 510
MacIntyre, J., (20) 1700
Mackay, W. A., (18) 1884
McKay, W. G., (33) 1880
MacKee, G. M., *734, (33) 1135
McKee, J. H., (122) 276
McKendree, C. A., *1553
McKendrick, J. S., (12) 1609, (38) 2076
McKennan, T. M. T., (26) 1054
McKenty, F. E., (115) 892
McKenzie, D., (26) 432
MacKenzie, K. A. J., (91) 1233
MacKenzie, W. L., (1) 973, (10) 1329
Mackie, F. P., (13) 709, (13, 14) 1984
MacKinney, W. H., (37) 1421
McKinniss, C. R., (92) 429
MacKlem, G. E., (117) 892
Macklin, C. C., (2) 603, (1) 1323
MacLaren, A., *755
McLaughlin, A. J., 651, *1555
McLean, A., *760
McLean, F. C., (61) 1232, *1382
MacLean, H., (26) 278
McLean, H. A., (16) 278
McLean, M. H., (101) 892
McLean, S., (227) 363
McLean, S. H., (116) 2075
MacLennan, A., (7) 1609
MacLeod, C., (1) 807
MacLeod, J. J. R., (24) 888, (72) 969, (15) 1427
McLeod, J. W., (23) 1610, (22) 1985
McLester, J. S., (13) 426
McManus, T. U., (20) 1135
McMartin, C., *1028
McMeans, J. W., (5) 1107, (35) 804
McMillen, R. M., (129) 63
McMorrow, F., (94) 608
McMullen, J., 2069
McMurphy, J. P., (99) 1507
MacNeal, W. J., (38) 706, *1090, (48, 49) 1422, (20) 1695
McNee, J. W., (11) 2261
McNees, A. J., (95) 892
McNeil, A., (120) 971
M'Neil, C., (14) 432, (13) 894, (9) 1609
McNeil, H. L., (133) 431, 2158
MacNeille, P. R., (98) 275
MacNider, W. deB., (83) 1425
Macomber, S., (15) 2160
McPhedran, A., (41) 1231, (34) 1981
McPherson, R., (10) 1694
McQueen, J. M., (41) 1700
McRae, T., (22) 509
McWalter, J. C., (10) 1699, (28) 2075
McWeeny, E. J., (7) 807
MacWilliam, J. A., (11) 1427, (23) 2075
McWilliams, C. A., *1473
McWilliams, T. S., (33) 706
Maddock, C., (15) 354
Maddox, E. E., (7) 1139
Madeira, D., (96) 1514
Madigan, P. S., (80) 2074
Madill, D. G., (18) 807, (133) 892, (10) 894, (14) 1508
Maes, U., (80) 1507
Maestre, (152) 72, (112) 1064
Magalhaes, O., (114) 1889
Maggiore, S., (101) 1334, (110) 2169
Magnus, G., (52) 1330
Magnus-Alsleben, E., (56) 1613
Magruder, W. E., (80) 806, (59) 2073
Mahoney, J. J., *1110
Mahood, C. S., (96) 510
Mahr, J. C., (68) 806, (112) 1138
Maier, M., (171) 285
Mailhouse, M., 269
Maillet, A., (59) 202
Maillet, M., (46) 612
Main, D. C., (41) 1325
Major, R. H., (52) 1423
Makins, G. H., (37) 1700, (17) 2261
Makrocki, F., (26) 2262
v. Malaisé, E., (97) 614
Malarte, (65) 280
Malartic, (44) 811
Malherbe, E. J., (15) 1793
Malinowsky, M., (73) 517
Maliwa, E., (85) 713
Mallory, W. J., (70) 1137
Malm, O., (165) 206
Malone, R. H., (10) 1058
Malone, W. H., (49) 2073
Maloney, W. J. M. A., (71) 61, (87) 197, (61) 1326
Mamourian, M., (4) 2165
Manca, M., (104) 1334, (61) 2264
v. Mandach, G., (59) 811
Mandel, L., (28) 1329
Manges, M., (120) 1698
Manges, W. F., (12) 1879
Manheimer, G., (84) 61
Manheimer, W. A., (36) 804
Manion, R. J., (120) 1327
Mann, A. T., (31) 1605
Mann, F. C., (26) 705
Mann, F. H., (43) 805
Mann, H. V., (23) 2165
Mann, T. A., (22) 1054
Mannich, C., (206) 362
Manning, D. F., (73) 2074
Manning, J. B., (42) 352, (121) 1608
Manning, W. J., *1476
Manoiloff, E. O., (218) 362, (96) 1989
Mansvetova, S. M., (112) 2081
Manton, W. P., (108) 198, (38) 2160
Mantovani, M., (113) 615
Manzi, L., (111) 615
Maple, J. B., (42) 196
Marburg, O., (55) 2264
Marchand, F., (92) 614
Marcotty, A., (60) 811
Marcus, H., (106) 1138
Marcuse, E., (37) 1794
Marcy, H. O., *238
Marek, R., (107) 70
Mariarta, D. C., (140) 971
Marie, P., (51) 201, (62) 202, (71) 281

Marino, E., (156) 72
Marion, G., (37) 65, (41) 66, (81) 281
Mariotti, U., (106) 1888
Mark, C. W., (30) 427
Markevitch, M. S., (108) 2081
Markoe, J. W., (23, 27) 1231
Marks, H. K., (56) 1981
Markull, F., (65) 897
Marogna, P., (75) 1797
Marriott, W. M., *397, (42) 605, (79) 970
Marsh, C. D., *30
Marshall, A., (13) 1329, (22) 1793
Marshall, E. K., Jr., (62) 60, *1533
Marshall, G. B., (17, 18) 64
Marshall, G. D., (56) 1232
Marshall, H. T., (31) 889, 1977
Marshall, H. W., (49) 1605
Marshall, V. F., (121) 510, (188) 973
Marshall, W., 1693
Mart, W. D., (30) 2165
Martelli, C., (38) 2311
Martelli, P. N., (98) 1888
Martin, A., (21) 975
Martin, C., (48) 1986
Martin, E. D., (97, 99) 353, (174) 973
Martin, E. G., (13) 1503
Martin, E. H., (20) 605, 2158
Martin, H. H., 1499, (73) 2161
Martin, W., (142) 276
Martinelli, F., (95) 2081
Martinet, A., (61) 202, (56) 356, (63) 434, (35) 2166
Martinez, I. G., (17) 513
Martinier, P., (45) 1985
Martinotti, L., (43) 1238
Martiri, A., (247) 363
Martyn, V. C., (34) 894
Maruyama, S., (84) 614
Marvel, E., (115) 2163
Marvel, P., (99) 1327
Marzemin, M., (97) 2081
Mason, A. B., (139) 431
Mason, J. B., (70) 429
Mason, J. T., (153) 972
Mason, M. L., (11) 1420
Mason, W., Jr., (96) 1507
Massalongo, R., (171) 439, (59) 2264
Massarotti, V., (142) 72
Masslow, M., (123) 436
Matas, R., *1441
Materazzi, C. S., (74) 1432, (107) 2169
Mathewson, G. H., (48) 60
Mathias, (58) 1885
Mathieu, A., (30) 514, (44) 1985
Matson, R. C., (148) 972
Matthes, M., (46) 1795
Matthews, E. A. C., (22) 1700
Matthews, J. D., (81) 708
Matthews, S. A., (63) 1697
Matti, H., (64) 613, (71) 812, (100) 1234
Mattison, F. C. E., (40) 60
Matzkiewitsch, J., (117) 204
Mauclaire, P., (67) 280, (32) 611, (22) 975
Maupetit, G., (52) 66
Maurel, E., (54) 710
Mauriac, P., (35) 65, (55) 710, (47) 896
Maury, J. M., (142) 1328
Mauss, T., (138) 437
Maxwell, J. T., (44) 1325
May, C. H., (87) 607, (165) 973
May, E., (19) 1059
May, E. S., (42) 60
May, J. V., (2) 1230
Mayer, A., (78) 812, (79) 978, (53) 1238, (74) 1511, (90) 2080
Mayer, E., (74) 197, (79) 614
Mayer, K., (129) 283, (50) 1143
Mayer, L., (106) 510
Mayer, M., (66) 1331
Mayer, O., (69) 1430
Mayerhofer, E., (225) 363
Mayes, C. M., (89) 1982
Maylard, A. E., (6) 199
Mayo, C. H., (32) 350, 793, (14) 808, (76) 1056, *1147, (46) 1421; (68) 1507, *2025
Mayo, W. J., (23) 350, *446, (53) 806, (27) 967, (42) 1137, (72) 1233, 1693
Mays, T. J., (104) 275, (105) 354, (131) 971, (60) 1137, (119) 1327, (108) 1983
Mazing, E., (179, 182) 439
Mazza, S., (71) 898, (71) 977
Mazzitelli, M., (104) 2081
Means, J. H., (65) 1697
Means, J. W., (126) 198
Mechling, C. C., (89) 510
Medalia, L. S., (35) 1696
Meek, W. J., (9) 508
Mefford, W. T., (84) 1881
Megrail, W. P., *1031
Mehlmann, J., (76) 977
Meierhof, E. L., *1389, (126) 1698
Meigs, G. L., (3) 426, (91) 2162
Meine, B. M., (38) 1605
Meinhard, A., (25) 1980
Meinicke, E., (93) 435
Meisel, A., (70) 897
Meisenbach, R. O., (5) 272
Melchior, E., (29) 1611
Melchiorri, A., (104) 1243
Melikjanz, O., (92) 435, (103) 615
Meller, J., (103) 608
Mellish, M. H., (83) 1697
Melrose, J. A., (21) 427
Meltzer, S. J., (66) 812
Melvin, G. S., (46) 432, (49) 710, (12) 1427, (23) 2075
Mendel, L. B., (58) 60, (66) 61, 190, (34) 605, *819
Mendel, M. L., (45) 428
Mendelsohn, J. J., (76) 1881
Mendenhall, W. L., (6) 2258
Merk, L., (96) 713, (61) 1613
Merrill, W. J., (113) 510
Mertens, G., (110) 436, (37) 2263
Merzbach, G., (128) 205
Messer, R. G., (27) 1788
Messerschmidt, T., (133) 437
Mesureur, A., (49) 201
Meyer, (59) 67
Meyer, A., (4) 703
Meyer, A. W., 701, (74) 711, (4) 1323
Meyer, E., (13) 603, (90) 979, (103) 1243, (79) 1331
Meyer, F., (93) 69
Meyer, G. M., (75) 969
Meyer, H., (111) 436
Meyer, O. B., (47) 1330
Meyer, R., (105) 203, (54) 1238
Meyer, W., (105, 112) 436, (7) 802, (57) 1144
Meyer-Betz, F., (80) 68
Michaelis, L., (85) 68
Michelsen, K., (97) 1514
Michie, H. C., (65) 806
Michinard, P., (85) 1507
Mielel, J., (74) 1144
Mickaniewski, M., (43) 66
Middleton, W. S., *1746
Mielke, F., (75) 435
Mikhailoff, M. P., (84) 1145, (106) 2081
Mikhailoff, P. I., (88) 1614, (116) 2081
Mikkelsen, E. M., *1030
Miles, A., (16) 2165
Miles, W. E., (14) 2075
Miller, A., (48) 889
Miller, A. F., (45) 1231
Miller, A. H., (22) 1428, *1474
Miller, C. H., (30) 1884
Miller, C. W., (38) 605
Miller, D. J. M., 55, *579
Miller, E. H., (86) 892
Miller, H. C., 2015, (34) 2076
Miller, H. R., (43) 509
Miller, J., (40) 709
Miller, J. A., (75) 1233, *1623
Miller, J. L., *1107, (1) 1604
Miller, J. W., (74) 61, (22) 803
Miller, L., (78) 1881
Miller, S., (15) 350
Miller, S. R., (18) 1504
Miller, T. F., (91) 1697
Miller, T. G., *944
Milligan, W., (10) 2164
Milliken, H. E., (68) 707
Millikin, B. L., (102) 1234
Millikin, M., (99) 2074
Mills, C. K., *1813
Mills, C. W., (54) 2073
Mills, H. H., (8) 894
Mills, R. M., (62) 429
Mills, W. P., (91) 353
Millspaugh, W. P., 262
Milne, C., (11) 354, (14) 1236
Milner, G. A., (127) 1139
Milovanovic, M., (109) 70
Mimbela, P. S., (155) 72
Miner, A. L., (93) 1791
Mingazzini, G., (143) 72, (5) 1791
Mink, O. J., (110) 1057, (132) 1983
Mink, P. J., (117) 1244
Minor, C. L., 347, (76) 509
Minot, G. R., (11) 603, (57) 2161
Mintz, V. M., (131, 132) 616, (86) 1145
Mioni, G., (97) 980
Mircoli, S., (137) 72
Mironescu, E., (107) 204
Mirowsky, M. E., (128) 616
Missildine, J. G., (128) 1698
Mitchell, A. P., (11) 513, (3) 1235
Mitchell, E. W., (98) 2074
Mitchell, H. W., (117) 1327, (54) 1981
Mitchell, J. F., (102) 1881
Mithoefer, W., (55) 1506
Mitra, G. C., (17) 709
Mix, C. L., (51) 1137
Miyauchi, (68) 711
Moeckel, K., (95) 358
Moeller, A., (54) 612
Moeller, H. N., (10) 1054
Moffett, J. J., (83) 708
Moffitt, H. C., (48) 969
Mogwitz, G., (192) 362
Mohr, R., (61) 1796
Mølnichen, E., (103) 1146
Moiroud, P., (46) 201
von Möllendorff, W., (54) 1885
Møller, H. C. V., (196) 440
Möller, W., (25) 975
Möllers, B., (142) 360
Molloy, T. M., (133) 276
Molony, B., (22) 610
Molony, M., (39) 1231
Moltrecht, M., (91) 358
Momburg, (44) 2166
Momose, K., (32) 355
v. Monakow, P., (124) 360, (78) 435, (60) 977
Mondor, H., (59) 434
Monrad, S., (123) 1244
Monrad-Krohn, G. H., (135) 2170
Montague, E. A., (122) 198
Montgomery, C. M., (39) 1135
Montgomery, D. W., (51) 606, (75) 1137, (89) 1138, (33) 1231
Montigny, W., (42) 1142
Moog, O., (155) 284
Moore, B., (43) 1981
Moore, C. A., (30) 2076
Moore, C. G., (18) 1979
Moore, F., (126) 431
Moore, G., (15) 603
Moore, J. E., (105) 510, *757
Moore, J. J., (40) 804
Moore, J. W., (130) 971
Moore, N. W., 1417
Moore, R., *1643
Moore, W., (58) 1697
Moorhead, T. G., (5) 2261
Moots, C. W., (13) 2070
Morawitz, P., (152) 284
Morax, V., (45) 1701
Moreau, L., (61) 356
Moreau, R., (21) 1141
Moreira, A. A. S., (73) 1614
Moren, J. J., 1501
Morestin, M. H., (61) 711
Morgan, F. P., (108) 1607
Morgan, H. J., (98) 1234
Morgan, J. M., (14) 1883
Morgan, W. G., (10) 1323
Morgan, W. P., (22) 513
Morgenstern, K., (104) 814
Morgulis, S., (46) 1789
Moriarta, D. C., (6) 58, (14) 2070
Morin, (65) 357
Morison, R., (51) 889, 1344
Moritz, F., (141) 284
Morley, J., (5) 1328
Moro, E., (63) 516
Morris, D. H., (74) 1606
Morris, H. T., (76) 429
Morris, R. T., (14) 58, (99) 1425, (102) 1607, 1688
Morrison, F. A., (35) 706
Morrison, H., (49) 352
Morrison, J., (24) 432
Morse, F. L., (14) 350
Morse, J. L., (79) 353, (8) 1053, (2) 1502
Morse, M., (18) 2259
Morse, M. E., (60) 1326
Morse, P. F., (41) 1055, (32) 1135
Morse, R. B., (22) 1788
Morse, W. F., (2) 802
Morson, A. C., (32) 278
Mort, S., (17) 894
Mortimer, J. L., 1229
Morton, A. W., (17) 605
Morton, C. A., (3) 199
Morton, J. J., Jr., (51) 2160
Morton, J. N., (18) 894
Morton, R. S., (82) 607, (5) 2070
Morton, W. J., (106) 2163
Mosbacher, E., (54) 515
Moschcowitz, A. V., (153) 1608
Mosenthin, H., (158) 361
Moses, L., (64) 1796
Mosher, H. P., (15) 273, (34) 1055
Mosher, J. M., (5) 58, (6) 2070
Mosny, (55) 356
Moss, P. B., (140) 199
Mosti, R., (73) 1432, (115) 2170
Motley, J. C., 1978
Mott, F. W., (18) 513
Mott, W. W., *1028
Motzfeldt, K., (119) 714, (136) 2170
Moulton, H., (31) 1696
Moure, E. J., (60) 356
Mouriquand, G., (62) 434
Mowat, H., (5) 431
Mowry, W. A., 1877
Moxon, F., (4) 277
Moyes, J. M., (12) 1883
Much, H., (94) 358
Mühlens, P., (130) 360, (37) 2311
Muhsam, H., (10) 2310
Mühsam, R., (105) 70, (49) 1238
Muir, R., (25) 1985
Mulherin, W. A., (35) 509
Mullally, E. J., (7) 194
Müller, A., (72) 812, (70) 2079
Müller, C., (125) 205
Müller, E., (134) 205, (89) 813
Müller, G., (72) 435, (54) 1795
Müller, G. P., (19) 1879
Müller, H., (142) 205, (71) 1511, (79) 2168
Müller, J., (134) 283
Müller, L., (148) 360
Müller, O., (103) 713
Müller, R., (63) 67
Müller, T., (44) 1142
Mumford, J. G., (8) 802, 1229
Munro, H. S., (45) 1880
Munroe, A. R., 1688
Munroe, J. P., (78) 1326
Munson, J. F., (54) 1423
Münzer, E., (70) 516
Murard, C., (44) 356
Murard, J., (45) 66
Murphy, F. T., (9) 802, (59) 1424
Murphy, J. A., (96) 1057
Murphy, J. B., (44) 197, *1249, (76, 79) 1606
Murphy, J. W., (156) 972
Murray, H. L., (3) 807
Murray, J. R., (46) 432, (49) 710, (12) 1427
Murray, R. H., (115) 1139
Murray, R. W., (43) 709
Murray, T. A., (146) 1699
Murschhauser, H., (23) 605
Muscel, J. N., (135) 205
Musgrave, W. E., (95) 510, (138) 1698
Muskat, G., (91) 517
Muskens, L. J. J., (3) 1791
Musser, J. H., Jr., (101) 198, (33) 967, (45) 968, (71) 890
Mutch, N., (47) 432, (50) 710
v. Mutschenbacher, T., (89) 1241
Myers, A. W., *1179
Myers, B. D., 1499
Myerson, A., (56) 606
Mysch, W., (239) 363

N

Nachmann, L., (71) 281
Naegeli, T., (83) 203
Naffziger, H. C., (38) 427
Nagel, W., (115) 510
Nagorskaia, V. E., (81) 1614
Nagy, T., (66) 67
Nair, T. K. G., (26) 1700
Naish, A. E., (40) 1700, (7) 2310
Nammack, C. E., (87) 61
Nannini, G., (90) 1063
Narath, A., (156) 438
Nascher, I. L., (84) 708, (73) 1137, 2249
Nast, E., (223) 363
Nathan, D., (109) 275, (13) 887
Nathan, E., (113) 359
Natvig, J. R., (102) 1146
Naumann, G., (94) 1616
Neal, D. W., (53) 1325
Nebesky, O., (75) 517
Neckarsulmer, K., (30) 1611
Neff, F. C., (80) 197, *1181
Neff, I. F., (21) 705
Neidig, R. E., (33) 605, (64) 1697
Neilson, C. H., (109) 62 (71) 2074
Neisser, A., (86) 1241
Neisser, E., (101) 70
Neitz, E. A., (115) 2081
Neiva, A., (113) 1889
Nelbach, G. J., (22) 2159
Neligan, A. R., (25) 2165
Nelken, A., (93) 1982
Nelson, A. W., (97) 2163
Nelson, C. F., (63) 1697
Nelson, K., *2277
Nelson, R. M., (138) 431
Nelson, V. E., (17) 2259
Nesfield, V. B., (24) 1700
Netter, (18) 2262
Neu, C. F., (50) 1880
Neuburger, M., 1255, 1390
Neue, H., (95) 713
Neufeld, F., (87) 1512, (92) 1704
Neugebauer, F., (44) 976, (78) 1887
Neugebauer, H., (213) 362, (96) 518
Neuhof, H., (107) 429, (123) 892, (45) 1421
Neuhof, S., (86) 353, *577, (125) 971
Neumann, A., (75) 1887
Neumann, J., (116) 282
Neurath, R., (69) 2079
Neustätter, O., (205) 362, (139) 437
Neuwirth, K., (104) 203
Neve, A., (10) 64
Newburgh, I., (17) 888
Newburgh, L. H., *311, (11) 603, (17) 888

Newcomb, P. B., (62) 1326, (54) 1981
Newcomet, W. S., (22) 350, *743 (57) 2261
Newell, E. D., (126) 1234
Newell, E. T., (136) 893
Newell, L. B., (140) 431
Newlin, A., (121) 276
Newman, D., (13) 1236, (26) 1793
Newman, E. A. R., (10) 354, (16) 1236
Newman, H. H., (137) 1234
Newmark, L., (62) 2078
Newton, L. A., (102) 2075
Newton, R. C., (64) 1137
Newton-Davis, C., (30) 1700
Nice, L. B., (11) 272, (11) 1503
Nicholls, F., (24) 1428
Nichols, C. L., 1976
Nichols, E., 346
Nichols, H. J., *466 (22) 2259
Nichols, T. C., (73) 429
Nicholson, F. D., (37) 432
Nicholson, P., (1) 1502
Nicholson, S., Jr., (38) 1696
Nicholson, W. R., (5) 349, (8) 1694
Nickell, A. W., (65) 275
Nicola, B., (88) 1888
Nicolaysen, J., (25) 350
Nicoll, H. K., *2225
Nicoll, M., Jr., *235, (39) 273
Nieden, H., (26) 2311
Niel, (67) 280
Nielsen, A., (110) 1990
Nieszytka, L., (83) 812
Nieuwenhuijse, P., (118) 616
Nikitin, M., (93) 614
Niklas, F., (145) 284, (58) 1701
Nikolsky, A. M., (87) 1145
Niles, G. M., (127) 431, (21) 1054, (7) 1604, (31) 1880
Nippe, (74) 2079
Nippe, M., (70) 1886
Nirrnheim, E., (193) 362
Nitzescu, J. J., (78) 1241
Nobécourt, P., (59) 202, (54) 434
Nobel, E., (52) 1423
Nobiling, H., (36) 2311
Noble, G. H., (111) 1138
Noble, W. C., (9) 2159
Nocht, A. E. B., (66) 1886, (84) 2079
Noeggerath, C. T., (59) 1331
Noguchi, H., (119) 971, (60) 1605
Nonnenbruch, W., (64) 1331, (63) 2167
von Noorden, C., (100) 1063
Norbury, F. P., (54) 1325
Norbury, L. E. C., (35) 2076
Nordentoft, J., (120) 714, (80) 1432, (99) 1514
Nordentoft, S., (81) 1432
Nordmann, O., (44) 1612, (51) 1795, (73) 1988 (71) 2079
Norris, G. W., 348, (86) 1138
Norris, H., (129) 1234
Northrup, W. P., (181) 973
Norton, G. H., (4) 802
Norton, J. F., (11) 2159
Norton, R., (94) 275
Nota, A., (94) 979
Novak, E., *617, (90) 1056
Novak, J., (151) 438
Nukada, S., (81) 1145
Nussbaum, A., (105) 615
Nutting, M. A., (25) 1324
Nuzum, F., (86) 2162

O

Obarrio, J. M., (158) 72
Oberndorf, C. P., (98) 1607
Oberst, A., (90) 1514
O'Brien, C. M., (6) 2261
O'Connell, M. D., (24) 2165
O'Connor, B. J., (75) 353
O'Conor, J., (11) 609, (41) 709
Oechsner, J. F., (156) 1608
Oeconomos, S. N., (69) 280
Oehlecker, F., (68, 69) 1060, (31, 32) 1509
Oehler, J., (56) 1060, (59) 1796
Oeller, H., (72) 977
Oertel, T. E., (45) 1981
O'Farrell, W. R., (25) 1884
Ogilvie, H. S., *1936
Ogilvy, C., (41) 2260
Ogston, A., (4) 807
Ohly, A., (138) 205
Ohmes, A. K., *1628
Ohno, T., (12) 350
Okada, S., (79) 1145
O'Kelly, W. D., (6) 354
Okinczyc, J., (27) 1059
Old, E. H. H., (127) 1983
O'Leary, D. V., (3) 1694
Oliva, C., (84) 1989
Oliver, J., (9) 199
Oliver, P., *1452
Oliver, T., (25) 200, (8) 974
Oliver, T. H., (23) 513
Olivero, C., (100) 2081
Oliveros, B. P., (36) 196
Olow, J., (74) 517, (40) 2263
Olpp, G., (43) 1142
O'Malley, M., (6) 1878
O'Neal, A. H., (110) 1234
O'Neill, B. J., (38) 1231
O'Neill, J. H., (20) 1788
Onodi, L., (18) 278, (13) 513
Ophüls, W., *521, (29) 1695
Opie, E. L., *136
Opin, (44) 811
Opitz, E., (76) 711, (91) 1514
Opitz, H., (88) 1063
Oppel, W. A., (24) 1605
Oppenheimer, A., (43) 273
Oppenheimer, B. S., (43) 273
Oppenheimer, E. D., (123) 892
Oppenheimer, H., (182) 286
Orbison, T. J., (10) 1604
Orchard, N. G., (25) 59
Ordway, T., (44) 2072
Orenstein, A. J., *1931
Orlowski, P., (44, 50) 1510
Orr, D., (1) 1791
Orr, J. B., (16) 1427
Ortali, C., (90) 1888
Ortali, O., (94) 1514
Ortiz, M. S., (150) 72
Ortner, N., (68) 1988 (72) 2079
Orton, S. T., (6) 1791
Osborne, T. B., (58) 60, (66) 61, 190, (34) 605
Osgood, R. B., (13) 1788, *2199
Oshana, A., (57) 275
Osler, W., 1409, 1553, (4) 1609, 2305, (1) 2310
Osmond, J. D., (53) 352
Osterberg, E., (37) 605
Osterhout, W. J. V., (13) 2259
Ostheimer, M., *1996, (50) 2261
Ostrovsky, S., (86) 1614
Oswald, A., (120) 359
Otis, E. H., 346
Otis, E. O., (78) 1507
Otto, R., (52) 1885
Ottosson, O., (128) 1890
Ottow, B., (189) 286
Oushakoff, V. G., (133) 616
Outerbridge, G. W., (12) 887, (5) 2309
Overbeck-Wright, A., (22) 2165
Overend, W., (8) 2310
Ovington, E. L., 419
Ovsiannikova, V. V., (194) 286
Owen, R. G., (46) 509
Owen, W. B., (72) 353, 1501
Ower, J. J., (14) 1323
Oxley, W. H. F., (26) 1610
Ozorio, M., (250) 364

P

Paasche, A., (85) 1512
Pabst, C. F., (103) 198
Pach, H., (86) 68, (99) 518
Packard, G. B., 1229 (58) 2161
de Page, A., (21) 967
Page, B. W., (30) 1788
Page, C. M., (2) 1139 (9) 2164
Page, H. M., (27) 610
Page, J. R., (30) 273, *468
Painter, F. M., (45) 352
Palacios, G. D., (39) 509
Paldrok, A., (187) 439
Palmegiani, E., (93) 1888
Palmer, A. B., 2156
Palmer, E. P., (133) 1882
Palmer, W. W., (65) 1697
Palmulli, V., (39) 2312
Pampiglione, G., (99) 1888
Pancoast, H. K., *523, (38) 1421
Pando, P. J., (154) 72
Panner, H. J., (138) 616, (120) 714
Pannett, C. A., (10) 2075
Panting, L. C., (35) 894
Panton, P. N., (42) 432, (45) 709
Paoletti, G., (98) 2081
Pappenheimer, A. M., (45) 1789
Parak, R., (17) 1059
Paranhos, U., (74) 1144
Parenago, P. P., (134) 616
Park, F. E., (109) 970
Park, W. H., *235, (14) 704, *859
Parke, W. E., (7) 1694
Parker, C. A., *1027
Parker, G., (109) 429
Parker, G. M., (73) 1982
Parker, H. C., (165) 973
Parker, J. H., (71) 429
Parker, R., (22) 2075
Parker, W. R., *215
Parkes, C. H., *2129
Parkinson, J., (1) 277
Parnell, G. C., (7) 431
Parons, C. G., (58) 352
Parry, S., (130) 1139
Parsons, C. G., (30) 196
Parsons, J. G., (82) 1697
Parsons, J. H., (4) 1058
Partlow, W. D., (142) 431
Partsch, C., (41) 976
Pasini, A., (161) 438, (83) 1331
Passini, F., (86) 2080
Pasteau, O., (37) 810
Pate, J. C., (45) 1325
Paterson, H., (26) 64
Paterson, M., (1) 609
Paterson, W. P., (11) 1329
Patrick, A., (43) 1700
Patton, J. M., (55) 890
Patton, W. S., (10, 16) 1984
Patton, W. T., (79) 1507
Paul, S. G., (121) 198
Paunz, M., (65) 1988
Paus, N., (104) 1146 (53) 2166
Pawinski, J., (105) 518
Paxton, J. W., (14) 2159
Payr, E., (113) 436, (87) 1331
Peabody, F. W., (43) 968
Peacock, A. H., (113) 429
Pearce, R. G., (54) 352, (24) 888, (8) 1503
Pearce, R. M., (52) 428, (72) 890, 1570
Pearl, R., (69) 1697
Pearson, G. H., (42) 432, (45) 709
Pearson, J. M., (29) 59
Pearson, W. A., *143
Pedersen, V. C., (104) 62, (102) 429 (78) 2074
Peebles, A. S. M., (23) 2165
Peer, E., (73) 1702
Peers, R. A., (33) 889
Peet, M. M., (15) 1604, (20) 1879
Peiper, A., (68) 613
Peirce, S. J. S., (56) 1605
Pelser, A., (46) 976
Pelser, J., (196) 362, (83) 1063
Pekelharing, C. A., (76) 1144
Peltesohn, S., (110) 359
Pendexter, S. E., (67) 1790
Pendleton, A. S., *1749, 2151
Penfold, W. J., (11) 1883
Pennington, W., (72) 429
Pennock, W. J., (112) 429
Penrose, C. A., (109) 1327
Pensuti, V., (70) 1144
Pentimalli, F., (69) 613
Pepper, G. E., (13) 1508
Pepper, O. H. P., (52) 428
Pepper, R. H., (142) 1235
Perazzi, P., (117) 519
Percy, J. F., (16) 808, (140) 1608
Pereira, A., (120) 520
Périer, E., (22) 1141
Perkins, C. E., (33) 1421
Permin, G. E., (114) 814
Pernet, G., (23) 1329
Perrier, M., (42) 66
Perry, H. B., (31) 1324
Pers, A., (77) 1241
Perthes, G., (100) 282, (114) 436, (51) 711
Pesier, J., (111) 359
Peter, A. G., (33) 1884
Peterka, H., (126) 205
Peters, A. W., (104) 970
Peters, E., (88) 358
Peters, E. F., (141) 1235
Peters, W., (94) 435
Peters, W. C., (66) 707
Petersen, W., (53) 428, (70) 1606, (43, 44) 1789, *1930
Peterson, R., (95) 62, (1) 349
Petery, A. K., *536
Petges, G., (56) 710
Petren, K., (126) 1890
Petroff, N., (77) 1614, (119) 1889, (52) 2077
Petroff, S. A., (52) 706
Petruschky, J., (98) 282
Pettit, J. A., (120) 1608
Pettit, J. W., (55) 1325
Pettus, C. S., (33) 1696
Peuckert, (38) 976
Peyton, D. C., 187
Pezzi, C., (18) 1059, (35) 1060
Pfahler, G. E., *628, 1321, (132) 1882, (5) 2075
Pfanner, W., (86) 614
Pfeiffer, (30) 1059
Pfeiffer, D. B., (28) 350, (74) 607
Pfeiffer, H. S., (65) 1060
Pförtner, O., (74) 977
Pflücker, (39) 1612
Pförringer, O., (132) 360
Phelip, (38) 514
Phemister, D. B., (71) 1056
Philbrick, I. C., (70) 606
Philip, P., (55) 710, (47) 896
Phillips, C. E., (23) 2310
Phillips, E. W. M. H., (6) 1328
Phillips, H. J., (63) 1982
Phillips, J., (10) 199, (141) 1328
Phillips, M. H., (22) 1884
Phillips, O. S. (112) 1882
Phillips, W. C., (50) 806
Piazza, C., (171) 439
Piazza, P., (59) 2264
Pick, B., (29) 1884
Pick, J., (82) 1512
Pick, L., (97) 1242
Pickens, D. R., (144) 1328
Pickerill, H. P., (4) 354
Picqué, L., (46) 1885
Pierce, E. A., (147) 972
Pierce, N. H., (79) 429
Pierpont, J. H., (26) 605
Pike, J. B., (36) 894
Pilchner, J. D., *208, (21, 22) 888
Pillet, M., (41) 66
Pilsbury, L. B., *1274
Pim, A. A., (8) 2164
Pinard, A., (37) 1985
Pinkus, F., (90) 69, (60, 61) 1510, (52) 1795
Piorkowski, M., (38) 1510
Pirie, A. H., 1419, (23) 1605, (161) 1608, (2) 1883
v. Pirquet, C., (93) 813, (5) 1235
Pirrung, J. E., (78) 61, (71) 1326, (59) 1790, (61) 1982, (61) 2073
Pitt, G. N., (31) 432
Pitzner, (36) 2311
Place, E. H., (15) 1420
Placzek, S., (95) 203, (82) 614
Plant, O. H., (95, 96) 970
Planten, M. J., (124) 616
Platt, H., (24) 195
Plehn, A., (56) 515
Plesch, J., (65) 1238
Pletnew, D. D., (104) 518, (116) 1889
Pleyte, A. A., (61) 429
Plitek, V., (60) 1701
Plotz, H., (55) 66
Plummer, E. M., (15) 273
Plunger, A., (55) 1143
Poch, R., (21) 2311
Poffenberger, A. T., Jr., (115) 354
Poggiolini, A., (78) 1797
Pogue, M., (61) 1880
Pohl, W., (90) 517, (49) 2166
Pohrt, (70) 1060, (70) 1511
Polak, J. O., (149) 1608
Pollag, S., (46) 2166
Politzer, H., (91) 1704
Pollock, A. R., (61) 969
Pometta, (38) 2166
Pond, E. M., (94) 708
Pongs, A., (130) 283
Pontano, T., (105) 1888
Pontoppidan, E., (6) 894
Poole, W. A., (85) 1697
Pooley, T. R., (139) 971
Popesco, A., (58) 356
Popoff, N. V., (114) 2081
Poppelmann, W., (17) 2311
Popper, E., (179) 361
Porak, R., (65) 434
Porcher, W. P., *579
Porosz, M., (85) 979
Port, F., (54) 515, (83) 614
Porter, A. E., (71) 1331
Porter, H. F. J., (84) 1982
Porter, L., (36) 427
Porter, M. F., 1320, (16) 2070
Porter, P. B., 270
Porter, W. D., (83) 275
Porter, W. H., (66) 197, 269
Porter, W. T., (17) 888
Posey, W. C., *219
Posnett, W. G. T., (24) 1236
Post, A., (13) 1135
Potocki, J., (28) 65
Pottenger, F. M., (14) 194, (15) 508, (36) 889
Potter, C., (96) 892, *1476
Potter, N. B., (14) 508
Potter, P. A., (100) 1327
Potter, R., (116) 1139
Potter, T., (73) 61, (41) 196
Potvin, F., (68) 202
Poucher, J. W., 1418, (12) 2070
Poulsen, V., (119) 2082
Poulton, E. P., (44) 432, (47) 710
Pousson, A., (78) 281, (230) 363
Powell, R. D., (28) 1884, (32) 1985
Powell, W. W., (3) 1507
Power, D., (29) 610, (29) 2165
Power, H. D., (36) 1231
Powers, C. A., (24) 350
Powers, H., *1669
Poynton, F. J., (26) 64, (34) 1885
Pozzi, S., (72) 281, (28) 975, (30) 975
da Pozzo, U., (108) 615
Pratt, J. S., (39) 273
Prenn, J., (51) 969
Prentice, C. F., (102) 608
Preston, J. W., (140) 1235
Preston, R. S., (116) 63, (133) 1698
Pribram, B. O., (24) 2311
Pribram, E. E., (36) 1237, (60) 2167
Price, C., (38) 200
Price, E., (16) 894
Price, F. W., (7) 278
Price, G. E., (122) 971
Price, L. T., (109) 1426
Price, W. H., *1811
Priestley, J., (30) 1329

Primrose, A., *842, (43) 1231, (35) 1981
Prince, A. L., (25, 26) 888, (75) 1425
Prince, H. L., (12) 1788
Pritchett, H. S., *648
Probst, C. O., (75) 509
Proescher, F., (102) 1983
Proskauer, A., (63) 1510
Proust, R., (39) 350, (41) 810
Pryor, J. C., (34, 35) 1324
Psarafti, G., (80) 1989
Pugh, W. S., (136) 1983
Puntoni, V., (127) 1706
Puppe, G., (82) 978
Puppel, E., (186) 362
Purdum, E. A., (20) 605
Pusey, W. A., (21) 803, (88) 1881, (56) 2261
Putnam, E. D., (28) 2260
Putnam, H. C., (20) 427
Putnam, J. J., (31) 59, *1891
Pybus, F. C., (29) 355, (9) 431
Pyle, W., (66) 1056

Q

Quackenboss, A., (35) 2072
Quénu, E., (20) 2262
de Quervain, F., (29) 967, (71) 1702
Quinby, W. C., (46) 352
Quincke, H., (140) 437

R

Rabens, I., (5) 2258
Rabinowitsch, M., (45) 1238, (123) 1698
Race, C. W., (52) 1231
Race, J., (145) 1699
Rachford, B. K., (15) 704
Rachmanow, A. N., (242) 363
Radano, F., (248) 363
Radcliffe, J. A. D., (13) 1058
Radley, J. H., (60, 71) 606
Radot, P. V., (54) 66, (77) 281, (67) 711, (43) 811
Raffle, A. B., (19) 1329
Rafin, (80) 281
Ragle, B. H., (43) 2072
Rahe, A. H., (34) 804
Raimann, E., (80) 2168
Raison, T. W., (124) 1983
Raiziss, G. W., (47) 605, *729
Ralls, A. W., (124) 1234
Ramey, R. L., (117) 1426
Ramsay, A. M., (5) 1058
Ramsdell, L. S., (43) 1055
Rand, C. W., (17) 427
Randall, A., (75) 61, (40) 1421
Randolph, B. M., (114) 63, 1970
Ranelletti, A., (101) 1888
Ranke, K. E., (66) 2167
Rankin, G., (3) 2164, (3) 2261
Rankin, W. S., 2068
Rankine, R. A., (29) 1884
Ranly, J., (84) 1607
Ransohoff, J., (77) 61
Ransohoff, J. L., (77) 61, 1786
Ransom, B. H., (65) 1424
Ransom, F., (91) 970
Ranzi, E., (55) 2264
Rapin, O. J., (50) 811
Rathbun, W. L., (81) 1233
Rathery, F., (41) 895
von Rauchenbichler, R., (75) 711
Raudnitz, R. W., (44) 1429
Rautenberg, E., (108) 204, (37) 1429
Ravenel, M. P., (52) 60, *1617
Ravitch, M. L., (69) 375
Ravogli, A., *387
Raw, N., (19) 354
Rawles, L. T., (71) 2161
Ray, V., (59) 1982
Read, C. F., (44) 1880
Read, H. L., (33) 1055
Reano, M., (110) 1243
Recasens, S., (118) 1705
Reddick, J. T., (70) 275
Reder, F., (117) 510, 1418, (8) 2070
Redlich, E., (81) 2168
von Redwitz, E., (89) 614
Reed, A. C., (108) 429, *1572
Reed, C. A. L., *449
Reed, H. S., (68) 1697
Reed, R., (50) 1790
Reed, T. W., (109) 1057
Reeve, E. G., (56) 279
Regennas, E. G., (57) 1697
Rehfuss, M. E., *11, (11) 194, *909, (127) 971, *2088, (14) 2259
Rehn, E., (68) 711
Reich, A., (105, 106) 282, (34) 976
Reiche, F., (55) 1510, (104) 2169
Reid, A. P., (128) 276
Reid, E., (19) 1610
Reid, E. C., (49) 969
Reid, E. U., (58) 509
Reid, H. S., (42) 200
Reik, H. O., (126) 512
Reiley, R. J., (112) 971
Reilly, T. F., (17) 58, (123) 2164
Reineking, H., (133) 63
Reinhardt, E., (167) 285
Reiss, E., (118) 70, (88) 2169
v. Reitz, F., (90) 1331
Reizenstein, A., (127) 205
Remsen, C. M., (144) 431, *1649
Renault, (30) 709
Render, C. D., (79) 806
Renisch, (60) 1613
Renner, O., (115) 282, (55) 976, (36) 1510
Reno, W. W., (64) 806, (66) 1506
Renton, J. C., (13) 278
Reuben, M. S., (3) 1787
v. Reuss, A., (110) 713
Reuss, E., (96) 203
Revillet, L., (42) 515, (34) 1794
Rewald, B., (84) 1512
Reye, H., (36) 1605
Reyn, A., (118) 2082, (131) 2170
Reynier, P., (71) 281
Reynolds, E., (124) 1882
Reynolds, H. B., (25, 30) 1980
Reynolds, W. E., (70) 1326
Reznicek, R., (82) 2168
Rhein, J. H. W., (120) 276, (66) 352, *1662, (80) 1697
Rheindorf, A., (52) 515
Rheinhold, C. H., (9) 64
Rhodes, C. A., (19) 1054
Rhodes, R. L., *483, (160) 1608
Ribbert, H., (53) 515
Ribemnot-Dessaignes, (32) 810
Rich, E. A., (150) 972
Rich, E. I., (119) 198
Rich, H. M., (79) 1982
Richards, A., (14) 1503
Richards, A. N., (80) 1425
Richards, E. T. F., 1420
Richards, T. W., (122) 1983
Richardson, C. W., (60) 707, (13) 974
Richardson, D. L., *1941
Richardson, J. J., (22) 1420
Richardson, W. S., (15) 609
Richter, G., (72) 1982
Richter, M., (132) 283
Richter, R., (36) 2263
Ricketts, B. M., (87) 1233
Ricksher, C., (8) 703, (38) 1880
Ridlon, J., (51) 2261
Rieck, A., (108) 814
Riedel, B., (69) 711, (73, 88) 1241, (30) 1509, (50) 2077
Rieder, H., (79) 517
Riedinger, F., (64) 1613
Riegner, H., (42) 976
Riesman, D., (167) 973
Rietz, T., (105) 1990
Rigdon, R. L., (20) 2310
Riggs, C. E., *1277
Riley, W. A., (69) 1424
Rimann, H., (115) 436
Rimer, E. S., (108) 1881
Rinderspacher, K., (75) 977
Rindfleisch, W., (107) 615
Ring, A. H., (11) 1135
Ring, G. O., (61) 1055
Ringel, (41) 1060
Ringer, A. I., (63) 60, (40) 605, *729
Ris, F., (161) 361
Risel, C. A., (33) 1611
Rist, E., (40) 895, (18) 1141, (4) 1235
Ritter, O., (173) 361
Ritter, C., (57) 976
Ritter, J., *2283
Rittershaus, (167) 361
Ritz, H., (88) 435
Rivas, D., (9) 2258
Riviere, C., (4) 1328
Robarts, H. H., (33) 200
Robbie, M. K., (132) 431
Roberts, D. W., (47) 969
Roberts, E. T., (17) 1793
Roberts, H. H., (115) 1234
Roberts, P. W., *1853
Roberts, T. S., 1692
Robertson, G. E., (135) 1983
Robertson, H. E., (61) 352
Robertson, L. B., (47) 60
Robertson, R. L., (141) 431
Robertson, W. G. A., (27) 2075
Robertson-Ross, J. E., (6) 1426
Robin, A., (73) 281, (108) 892
Robinson, B., (100) 198, (69) 606, (95) 1881, (119) 2164
Robinson, G. C., (75) 1790
Robinson, G. W., *773, (64) 1880
Robinson, H. B., (38) 279
Robinson, J. E., (153) 1699
Robinson, R. E., (30) 1135
Robinson, R. F., (72) 1326
Robinson, S., (8) 802
Robinson, W. D., 349, (106) 1881
Roblee, W. W., (37) 1231, (138) 1882
Roccavilla, A., (120) 2170
Rocci, S. R., (107) 1243
Roch, M., (65) 613
Rochard, (46) 2077
Rocher, H. L., (52) 896
Rock, J. L., (11) 272, (11) 1503
Rockey, P., (117) 1608
Rodella, A., (59) 1987
Rodgers, G. C., (136) 199
Rodman, W. L., (21) 508, 591
Roe, J. O., (118) 2164
Roedelius, E., (51) 1060
Roerdansz, W., (81) 1241
Roger, H., (88) 281
Rogers, A. M., (189) 973
Rogers, J., (36) 1421
Rogers, L., (32) 200
Rogers, L. A., (30) 804
Rohmer, P., (147) 284, (65) 812, (62) 2167
Rolando, S., (40) 66
Roler, A. H., (54) 60
Rolla, C., (116) 615
Rolland, J., (40) 895, (18) 1141
Rolleston, H. D., (17) 1329
Rolleston, J. D., (1) 807, (6) 1426
Rollet, E., (51) 356
Rollett, H., (45) 1612
Rolly, F., (120) 282, (31) 1237
Rolph, F. W., (109) 1607
Romanes, A., (32) 2165
Romano, G., (101) 2081
Romberg, E., (53) 1430, (62) 1613
Romeis, B., (119) 282
Romkes, P. C., (104) 980
Ronca, V., (111) 1889
Rongy, A. J., *158, 502, (121) 1327, (11) 1694
Roos, S. E., (181) 286
Roper, J. C., (63) 606
Rosanoff, A. J., (7) 703
Rosanoff, S. N., (67) 357
Rose, A., (28) 1793
Rose, C. W., (74) 435
Rose, W. C., (80) 970
Rosenbaum, G., (132) 971
Rosenberg, C., (51) 1423
Rosenberg, J., (89) 198
Rosenberg, M., (133) 205
Rosenberg, W. R., (78) 1614
Rosenbloom, J., (70) 61, (12) 426, (44) 968, *1203, (114) 1327, (25) 1695
Rosenfeld, R., (149) 360
Rosenfeld, S., (76) 1887
Rosenow, E. C., *903, *1835, *2026
Rosenstein, S. R., (132) 71
Rosenstirn, J., (85) 61
Rosenthal, F., (51) 1330, (104) 1705
Rosenthal, L. J., (101) 275
Rosi, U., (70) 1797
Rosica, G., (184) 286
Ross, E. L., (37) 273, (27) 1695, 1787
Ross, G. G., (114) 276
Ross, L. C., (96) 1327
Ross, R., (28) 2165
Rossi, E., (115) 615
Rossier, G., (63, 64) 357
de Rossignoli, G., (54) 1330
Rost, F., (21) 1141, (71) 1988
Roth, F., (225) 363
Roth, G. B., *476, (94) 970
Roth, H., (22) 59
Roth, O., (108) 518
Roth, P., (31) 605
Roth, P. B., (13) 1793
Rothmann, M., (67) 613
Rothschild, D., (127) 283
Rothwell, J. J., (77) 1697
Rotky, H., (91) 2081
Roubinovitch, J., (29) 810
Rouillard, J., (65) 434
Rous, P., (49) 515, (77-79) 1606, (48) 1789
Roussel, A. E., (119) 276
Roussy, G., (46) 515, (44) 895
Routier, D., (43) 895
Rouvier, J., (27) 514
de Rouville, G., (69) 302, (26) 975
Roux, (56) 67, (96) 1242
Roux, J., (31) 514, (23) 1141
Rovighi, A., (185) 286, (60) 1331
Rovsing, T., (125) 520
Row, R., (11) 708
Rowe, J. W., (79) 61, (54) 806
Rowe, O. W., 1601, (30) 2260
Rowell, H. S., (17) 2075
Rowland, S., (2) 2310
Rowlette, R. J., (16) 1793
Rowntree, L. G., (97, 98) 970, *1533
Rows, R. G., (1) 1791
Roy, J., (67) 202
Roy, M., (45) 1985
Roys, C. K., (26) 427
Rubashkin, V., (183) 439
Rubenstone, A. I., (111) 1983
Rubin, G., (135) 971
Rubin, I. C., (3, 8) 349
Rubino, C., (118) 2170
Rubner, M., (41) 1794, (19) 2311
Rucker, S. T., (135) 893
Rucker, W. C., *297
Rudnik, A. G., (254) 364
Rudolf, R. D., (18) 58
Rueck, G. A., (89) 1607
Ruediger, E., (72) 1988, (65) 2167
Ruffer, M. A., (24) 278
Ruge, E., (77) 202
Ruggles, E. W., (133) 2164
Ruh, H. O., *1159
Rühl, K., (123) 205
Rullmann, W., (68) 1511
Rumford, S. C., 1694
Rummo, G., (114) 615, (92, 99) 2081, (60) 2264
Rundle, M., (6) 609
Rusca, C. L., (80) 1797
Russ, C., (34) 1985
Russ, S., (32) 278
Russell, C. W., (95) 1327
Russell, D. G., (20) 2259
Russell, F. F., (89) 608
Russell, J., (10) 513
Russell, R. H., 964, 1078
Russi, P., (122) 2170
Ruth, C. E., *832
Ryall, C., (19) 894
Ryffel, J. H., (44) 432, (47) 710
Rzasnicki, A., (106) 518

S

Saalfeld, E., (112) 282
Saalmann, (78) 68
v. Saar, G., (107) 359
Saathoff, L., (69) 1331
Sabatini, G., (72) 1797
Sabin, C. G., (117) 198
Sacco, R., (103) 1888
Sachs, B., (5) 1978
Sachs, E., (133) 283
Sachs, H., (113) 359, (48) 1795
Sadikoff, V. S., (84) 1614
Sadlier, J. E., 1418
Safford, M. V., (6) 603
Safranek, J., (98) 713
Sagel, W., (143) 284, (46) 1613
Sahli, H., (126) 360, (2) 1058
Sailer, J., (48) 2261
Sajet, B. H., (101) 980
Sakaguchi, J., (30) 611
Salant, W., *1076, (15) 1503
Salecker, (98) 2169
Salge, B., (223) 363
Salisbury, J. H., 1410
Sallés, J., (44) 612
Salmon, T. W., (95) 275, (3) 703
Salomon, F., (92) 358
Salomonsen, K., (107) 980
Salzer, F., (85) 517
Sambon, L., (39) 611
Samelson, S., (222) 363
Sanborn, C. F., (55) 509
Sand, K., (97) 1146, (129) 1890
Sandels, C. C., (86) 509
Sandeman, C., (2) 973
Sandison, A., (28) 355
Sandrock, W., (116) 438
Sands, C. T., (10) 1327
Sandwith, F. M., (23) 1236, (14) 1329, (19) 1428, (15) 1508
Sanes, K. I., 1320
Sanford, A. H., (50) 197
Sanford, C. H., (107) 354
Sansum, W. D., (78) 970
de Sant Anna, A. C., (74) 1614
Santi, E., (61) 67, (175) 285
Saphier, J., (101) 615, (56) 1143
Saphir, J. F., (104) 1138
Sappington, S. W., *143
Sargent, E., (59) 1325
Saski, S., (116) 70
Satenstein, D. L., *1190
Satterlee, G. R., 270, (84) 1791
Satterlee, H. S., (132) 892
Satterthwaite, T. E., 270, (36) 509, (31) 967
Sattler, R., (127) 198
Sauer, W. E., (20) 967, (76) 2074
Sauerbruch, F., (80) 203
Saugman, C., (56) 612
Saundby, R., (7) 1427, (26) 1428
Saunders, B., (110) 1138
de Sautelle, W. T., *1853
Sauvage, C., (28) 65
Savage, G. C., (107) 2075
Savas, C., (104) 713, (75) 1988
Savatard, L., (24) 513
Savini, C., (107) 2163
Sawyer, C. W., (77) 1881
Sawyer, J. P., (109) 1983
Sawyer, W. A., *1537
Sawyer, W. H., (70) 1790, 2022
Saxl, P., (58) 1510
Sayres, A. W. F., (5) 609
Scalone, I., (76) 1797, (116) 2170
Scandola, C., (106) 2169
Scarlett, H. W., 2249
Schabad, A., (111) 713
Schackwitz, A., (122) 436
Schaeffer, E., (73) 435
Schäfer, (40) 1510

Schäffle, K., *1294
Schamberg, J. F., *729
Schanz, A., (3) 272
Schanz, F., (64) 1056, (55) 1430, (53) 2264
Schapira, S. W., *1852
Schapps, J. C., (95) 1425
Schatzmann, M., (107) 518
Schauffler, R. M., (93) 1327
Schauta, E., (158) 438
Schavoir, F., (99) 429
Schawlow, A., (200) 362
Schede, F., (77) 2079
Scheffer, W., (69) 812
Scheibert, W., (88) 203
Scheible, H., (76) 68
Schell, W., (39) 196
Schellong, O., (122) 70
Scheltema, M. W., (97) 1063
Schemensky, W., (97) 713, (99) 1705
Schenk, (75) 68
Schenk, F., (219) 362
Scherer, E., (140) 205
Schereschewsky, J. W., 147, 545, (51) 1885
Schern, K., (55) 706
Schickele, G., (66) 516
Schiele, G. W., (89) 2080
Schiff, A., (106) 70
Schiff, F., (60) 897
Schiffmann, J., (130) 71, (57) 811
Schild, R., (195) 362
Schildecker, C. B., *1203
Schiller, W., (226) 363
Schippers, J. C., (123) 520, (75) 1432
Schirokauer, H., (70) 613, (79) 1241
Schittenhelm, A., (80) 68, (100) 813
Schlange, H., (54) 2264
Schleiter, H. G., (8) 1323
Schlesinger, E., (82) 68
Schliep, L., (77) 1331
Schlimpert, H., (58) 811
Schloesser, (68) 1886
Schloessmann, (101) 282, (135) 437
Schloss, E., (89) 813, (55) 1987
Schloss, O. M., 2256
Schlueter, R. E., (89) 892
Schlutz, F. W., 57, (6) 1134, (39) 1506
Schmauch, G., (41) 2263
Schmidseder, M., (24) 1141
Schmidt, A., (109) 204, (138) 205, (5) 1323, (67) 1331, (72) 1511, (63) 1613, (31) 2263
Schmidt, E., (28) 1428
Schmidt, H. B., (53) 509
Schmidt, P., (86, 87) 1888
Schmidt, W., (37) 976
Schmiedt, W., (75) 357
Schmiegelow, E., 592, (13) 808, (73) 1056, (124) 1890
Schmincke, A., (68) 1331
Schmitt, A., (146) 284, (204) 362
Schmitt, W., (26) 1141
Schmitter, F., (88, 89) 1327
Schmitz, H., (78) 2079
Schmitz, K. L., (126) 436
Schmoldt, F. J., (103) 1234
Schmoll, E., (31) 1231, (42) 1697
Schnée, A., (151) 360, (66) 1430
Schneider, A., (91) 1241
Schnoor, E. W., (23) 1879
Schober, F., (113) 519
Schöbl, O., (135) 1698
Schoemaker, J., (117) 1705
Schoenberg, M. J., *915, (115) 1608, (110) 1881
Schoenenberger, F. J., *1852
Schoenwerth, A., (78) 1331, (61) 1430
Schofield, F. W., (37) 1504
Schofman, G., (63) 516
Scholtz, M., (65) 1982
Scholtz, W., (57) 1238
Scholz, (38) 1060
Scholz, B., (98) 70
Schoonmaker, P., (64) 197, (62) 707
Schopper, K. J., (149) 438
Schöppler, H., (62) 1796
Schorer, E. H., (91) 1327
Schott, T., (129) 436
Schotten, F., (47) 2264
Schridde, H., (45) 2263, (28) 2311
Schröder, R., (85) 1887
Schroeder, H., (61) 613
Schroeder, J. H., (64) 1982
Schroeder, L. C., 55
Schroeder, R. L., (71) 275
Schrup, J. H., (25) 1135
Schubert, G., (81) 1056, (65) 1144, (96) 1704
Schulemann, W., (76) 812
Schultes, (93) 435
Schultz, W., (93) 713
Schultze, B. S., (44) 2263
Schultze, F., (103) 980
Schulz, J., (55) 1060
Schulz, R. L., (149) 1328
Schumacher, (86) 203
Schumacher, J., (86) 812
Schumann, E. A., (6) 1694
Schupfer, F., (94) 2081
Schürer, J., (97) 69
Schuster, P., (78) 1703, (42) 2166
Schütz, E., (81) 357
Schütz, R., (98) 813
Schütze, C., (48) 1142
Schwalbe, J., (152) 360
Schwalm, E., (52) 1510
Schwartz, A. B., (36) 1696
Schwartz, A. I., (91) 1791
Schwartz, E., (41) 356
Schwartz, L., (7) 603
Schwarz, E., (41) 509, (34) 1330
Schwarz, G., (65) 1331
Schwarz, H., *371
Schwarz, K., (73) 202
Schwarzenbach, E., (159) 438
Schwarzmann, E., (85) 614
Schwarzmann, J. S., (106) 713, (91) 979
Schwatt, H., 50
Schweitzer, B., (62) 1144
Schwers, H., (57) 434, (39) 514, (67) 897
Schwiening, W. H., (91) 1331
Scinicariello, U., (40) 2312
Scott, E., *1570
Scott, E. L., (9) 272
Scott, K. M., (48) 1055
Scott, L. B., (29) 709
Scott, M., (2) 1609
Scudder, C. L., (16) 427, (63) 1424
Seamann, C., (152) 972
Searcy, H. B., (110) 1698
Searcy, J. T., (43) 1880
Sears, G. G., (15) 1135
Sebastiani, A., (95) 979
Secchi, P., (121) 2170
Secchi, R., (185) 286 (60) 1331
Sedgwick, J. P., (50) 60
Seeley, W. F., (61) 509
Seem, R. B., (57) 509
Seheult, R., (44) 279
Seifert, M. J., (112) 510, *2215
Seitz, L., (39) 1142
Sejournet, P., (29) 975
Selby, J. H., (122) 63
Selig, A., (70) 516
Sellards, A. W., (35) 59, (32) 889, (4) 1053, (31) 1788, (53) 2161
Sellenings, A. E., (92) 198
Sellers, N. E., (99) 1507
Selling, L., (61) 1232
Semerau, M., (92) 713
Semionov, V. P., (56) 896
Semple, J. M., (151) 972
de Senarclens, (49) 811
Serafini, G., (104) 1888
Serebriakoff, D. S., (99) 1989
Serota, H. M., (14) 704, *859
Setz, M., (215) 362
Sever, J. W., (86) 197
Sewall, H., (36) 273
Sexsmith, G. H., (101) 62
Sexton, J. C., (37) 196
Sexton, L., (59) 1137, (92) 1507
Seyffarth, O. W., (91) 435
Seymour, M. M., (125) 276
Shaffer, P. A., (82) 970, (72, 77) 1697
Shallenberger, W. F., (50) 2073
Shambaugh, G. E., (25) 273, *2100
Shands, H. R., (123) 1234
Shanklin, E. M., 1602
Shapiro, J., (65) 2161
Sharp, E. A., (114) 198
Sharp, J. C., (19) 273, (2) 277
Sharp, W. B., (23) 1504
Sharpe, N. C., (40) 1135
Shattuck, F. C., (16) 195
Shaw, A. F. B., (11) 894
Shaw, A. L., (54) 1423
Shaw, H. L. K., (1) 2070
Shaw, T. C., (37) 200
Shaw, W. F., (14, 18) 1610
Shea, T. B., (19) 1135
Sheaf, E. W., (10) 609
Sheaff, P. A., (136) 971
Sheffield, H. B., (38) 967
Sheill, S., (35) 432
Sheldon, C. S., (138) 1983
Sheldon, L., Jr., (131) 1983
Shelton, W. A., (80) 1790
Shennan, T., (17) 1984
Shenton, E. W. H., (21) 1428
Sheppard, J. E., (97) 608
Sheremetzinskaia, M. A., (193) 286
Sherman, D. H., (116) 1608, (15) 1979
Sherman, F. M., (79) 891
Sherman, H., (19) 1504
Sherman, H. M., (114) 892, (15) 2309
Sherren, J., (121) 1882, (35) 1885
Sherrington, C. S., (20) 2070
Shigley, H., (65) 429, (76) 1233
Shimazono, J., (77) 1145
Shimer, W., 296, 421
Shionnoya, F., (33) 355
Shipley, A. E., (2) 1507, (3) 1609, (7) 1699, (10) 1793, (9) 1883, (19, 25) 2075, (7) 2164, (4) 2310
Shipp, E. M., (95) 1057
Shirokogoroff, I., (178, 182) 439
Shively, H. L., (104) 198
Shoemaker, G. E., (6) 349
Shoemaker, J. F., (13) 967
Shoemaker, W. T., (121) 1698
Shohl, A. T., (10) 508
Shokor, N. I., (260) 364
Shorten, J. A., (26) 709
Shropshire, L. L., (180) 973
Shufflebotham, F., (37) 279, (21) 355, (21) 432
Shuman, J. W., *1760
Shurly, B. R., *2000
Shuttee, H. C., (90) 1327
Sicard, M. H., (57) 806
Sick, P., (156) 361
Sidwell, C. E., (79) 1881
Siebeck, R., (117) 282, (62) 977
Siegel, P. W., (57) 515
Sielmann, R., (64) 2167
Sieveking, G. H., (90) 358
Sievers, R., (117) 436, (33) 1237
Silberman, M., (105) 1425
Siler, J. F., *1090, (48, 49) 1422, (20) 1695
Silver, H. M., (2) 426
Silvestri, T., (109) 615, (69) 1797
Simmons, C. C., (10) 802
Simon, K. M. B., (40) 1135
Simon, L., (33) 2311
Simonds, J. P., (32) 1504
Simonovitch, V. P., (88) 1145
Simons, I., (97) 708
Simons, W. V., (96) 2169
Simpson, C. A., (100) 1507, (109) 2163
Simpson, F. E., *737, (59) 890
Simpson, J. K., (16) 1054, (68) 2161
Simpson, J. P., 339
Simpson, L. B., (63) 509
Simpson, S., (21) 1604
Simpson, T. Y., (4) 199
Simpson, V. E., (100) 1697
Simpson, W. L., *30, (88) 807
Sinclair, J. F., (49) 2261
Singer, C., (27) 278
Singer, G., (54) 2167
Singer, H. D., (65) 352, *1644, (27) 1695, 1787
Singer, J. J., *482
Sinozersky, S. M., (111) 2081
Sippel, P., (61) 812
Sison, A. G., (138) 1698
Sisson, W. R., (7) 1135
Sivert, A. K., (117) 1889
Skeel, A. J., (52) 352
Skillern, P. G., Jr., *2272
Skillern, R. H., (85) 509, (65) 707, *1923
Skinner, E. H., 1227, (72) 2074
Sladden, A. F. S., (49) 432, (52) 710
Slade, C. B., (111) 892
Slaney, C. N., (27) 1793
Slaviero, G., (98) 1334
Sleeswijk, J. G., (124) 616
Slemons, J. M., (24) 705
Slingerland, I. M., (100) 608, (137) 1328
Slocum, G., (99) 62
Slocum, H. W., (53) 2073
Slocum, R. B., (101) 1507
Slomann, H. C., (120) 1244
Sluka, E., (209) 362
Slye, M., (40, 48) 706
Smillie, W. G., (26) 1695
Smith, A., (46) 1325
Smith, A. J., *1746, (33) 1789, (9) 2258
Smith, A. L., (87) 1507
Smith, A. T., (7) 1507
Smith, B. T. P., (29) 894
Smith, C. M., (16) 1135
Smith, C. S., (15) 1503
Smith, C. W., Jr., (27) 705
Smith, D. G., (132) 1234
Smith, D. O., (8) 2309
Smith, F. H., (107) 1426, 1978
Smith, F. K., (102) 1234
Smith, G., (41) 352
Smith, G. M., (34) 1700
Smith, H., (134) 1328, (136) 1608, *2207
Smith, H. E., *851
Smith, H. L., *320, (6) 1058
Smith, H. M., (31) 605
Smith, J. F., (186) 973
Smith, K. W., (10), 967
Smith, L. D., (79, 80) 1881
Smith, L. W., *1667
Smith, M. H., (61) 890
Smith, O. C., (83) 61
Smith, R. M., (23) 59, (5) 1134, (21) 1230
Smith, R. R., (139) 276, (150) 1608
Smith, T., (49) 706
Smith, W. H., 403
Smith, W. V., (29) 1504
Smithies, F., *1839
Smyth, H. C., (13) 1508
Smyth, R. O., (14) 1793
Snapper, J., (118) 359
Sneden, C. M., (184) 973
Snell, A. C., (38) 2072
Snodgrass, W. A., (34) 1696, (44) 2160
de Snoo, D., (121) 616
Snow, I. M., (11) 887
Snow, W. F., (4) 2070
Snowball, T., (27) 1610
Snowden, R. R., (44) 273
Snure, H., (46) 509
Snyder, C. D., (20) 1604
Snyder, J. R., (39) 427
Snyder, W. H., (106) 608, (127) 1608
Sobernheim, W., (103) 70
Sochanski, H., (182) 357
Soga, A. R. B., (22) 1985
Sohn, D. L., (105) 1983
Sokalsky, N. A., (83) 1614
Sokolova, M. V., (82) 1614
Soldin, M., (84) 1703
Solenberger, A. R., (61) 1605
Solieri, S., (145) 72, (73) 711
Solis-Cohen, M., (18) 704, *1386, (65) 1790
Sollmann, T., (21, 22) 888
Solomon, M., (6) 703, (17) 803, (37) 1880
Solovtzova, A. S., (100) 1989
Sommerfield, J. E., (23) 1054
Sonne, C., (196) 286, (101) 518
Sonntag, E., (72) 357
Soper, G. A., (27) 2159
Sørensen, S. T., (117) 2082
Sorokin, V., (185) 439
Souchon, E., (94) 353
Souques, A., (54) 201
Southard, E. E., (19) 195, (28) 1324, (45) 1605, (78) 1697, (10) 1787, *1898
Southworth, T. S., *1375
Spafford, F. A., 193, (47) 806
Spalding, C. B., (74) 353, (120) 1697
Spargo, W. W., (77) 607
Sparmann, R., (16) 1879
Spät, W., (146) 437
Spearman, C., (74) 2161
Specklin, P. A., (97) 2169
Speed, K., (114) 510, (80) 1057, (30) 1605
Speese, J., (4) 2309
Speleers, R., (76) 1432
Spencer, G. W., (25) 64
Spencer, W. G., (1) 1328
Spengler, C., (98) 282
Sperk, B., (209) 362
Sperry, W. A., (24) 2159
Spiethoff, B., (23) 2311
Spiller, W. G., *1546, 2257
Spilman, S. A., (55) 275
Spindler, A., (94) 1146
Spitz, H., (138) 893
Spitzer, W. M., (32) 509, *2110
Spivak, C. D., (108) 62
Spohn, G. F., 1501
Spolverini, L. M., (125) 1706, (109) 1888
Spratling, W. P., (41) 1325
Sprengel, O., (72) 711, (23) 1509
Springthorpe, J. W., 1337
Squier, J. B., (33) 59, (116) 510, *2268
Stacy, G., *483
Stains, M. E., (51) 1423
Stainthorpe, W. W., (36) 709
Stamm, C., (49) 612
Stammler, A., (76) 1060
Stanley, C., *164, (76) 806
Stanley, C. R., (122) 430
Stanley, O. H., (157) 277
Stanton, E. M., (3) 1053, (118) 1327, (136) 1328
Staples, H. L., (74) 1233
Stapleton, W. J., Jr., (79) 708
Staring, H. L., (49) 1055, (34) 1789
Starke, (56) 1238
Starr, F. N. G., (37) 1981
Staub, H., (81) 203
v. Stauffenberg, (150) 284
Stauffer, N. P., (36) 1055, (108) 1234, (94) 1607
Stearns, A. W., (27) 1880
Stedman, A. B. L., (56) 509
Steel, G. E., (34) 1421
Steele, G., (108) 275
Steele, H. G., (135) 512
Steele, H. M., (3) 887
Steenbock, H., (17) 2259
Steensma, F. A., (124) 520
Steffens, P., (80) 1060
Steiger, A., (37) 2166
Steiger, O., (70) 1240
Stein, A. E., (34) 2263
Stein, J. B., (69) 1982

Stein, O. J., (26) 273
Steindler, A., (26) 1135
Steindorff, K., (12) 2310
Steinebach, R., (110) 282
Steiner, R., (152) 438
Steinfield, A. L., (77) 509
Steinhardt, I. D., (20) 705
Steinitz, E., (58) 613
Steinke, C. R., (22) 1879
Steinmann, F., (79) 712
Stellwagen, T. C., Jr., (116) 1983
Stengel, A., *1463
Stephan, R., (72) 977
Stephenson, J. W., (48) 1137
Stephenson, S., (25) 610, (27) 1329
Stephenson, T., 402
Stern, A., (92) 1138
Stern, E., (64) 897
Stern, H., (81) 812, (32) 2160
Stern, L., (98) 203
Stern, R., (154) 284
Stern, S., 1321
Stern, W. G., *2122
Sternberg, G. M., 1780
Sternberg, H., (30) 1428
Sternberg, W., (84) 1331, (96) 1334, (61) 1701
Sterne, A. E., (53) 1880
Stevens, E. F., (69) 1507
Stevenson, M. D., (157) 972, (102) 1234
Stevenson, W. C., (4) 431
Stevenson, W. F., (7) 1883
Stevenson, W. L., (23) 2159
Stewart, C. E., (16) 1610
Stewart, C. M., (64) 2161
Stewart, F. T., (26) 350, (35, 36) 1135
Stewart, G. D., (9) 2309
Stewart, G. N., (35) 514
Stewart, J. C., (12) 58
Stewart, J. R., (58) 1232
Stewart, M. J., (6) 2310
Stewart, T. G., (6) 1058
Stewart, W. H., (20) 350, 1322, (35) 2160
Stiassnie, J., (58) 202, (38) 356
Stiassny, S., (148) 206
Stieda, A., (28) 1237
Stieren, E., (115) 276, (87) 509, *545
Stierlin, E., (68) 897, (33) 1141
Stiles, C. W., (125) 431
Stillians, A. W., (21) 803
Stillman, E. G., (62) 1137
Stimson, C. M., (111) 62
Stiner, O., (121) 359
Stitt, E. R., (98) 1057
Stockdale, G. V., (8) 708
Stockton, F. W., (25) 2159
Stoddard, J. T., (27) 59
Stokes, A. C., 58, (57) 2073
Stokes, J. H., (31) 1135, (49) 1981
Stolkind, E., (160) 438
Stoll, H. F., (11) 1323, *1558
Stolte, K., (82) 1703
Stommel, A., (68) 357
Stone, A. K., 346
Stone, C. T., (93) 198
Stone, C. W., 2151
Stone, I. S., (131) 1234
Stone, W. B., (110) 2163
Stone, W. J., *1011, (79) 1326
Stoner, W. C., (52) 352
Stoppato, U., (79) 1797
Storch, B., (157) 361
Stotts, A. F., (55) 60
Stow, B., (69) 707
Stowe, H. M., (24) 1135
Strachauer, A. C., (45) 197
Strandgaard, (90) 1798
Strasburger, J., (100) 69
Strasser, E. M., (57) 606
Strassmann, P., (177) 285, (111) 510
Stratton, R. T., (33) 427
Straub, H., (81) 517, (90) 713
Straub, W., (59) 1430, (103) 1705
Strauch, A., (9) 967, (6) 1502, (115) 1698
Straus, D. C., (89) 1057
Strauss, (58) 1238
Strauss, A., (74) 613 (31) 2071
Strauss, A. A., *1525
Strauss, H., (80) 357, (40) 1429, (37) 1612
Strauss, I., (5) 1978
Strebel, J., (137) 437, (72) 1702
Street, J. P., *1831
Stretton, J. L., (9) 513
Strickland, C., (9) 2261
Strine, H. F., (108, 111) 1057, (131, 134) 1983
Stringfield, S. L., *1025
Stroganoff, V. V., (76) 1614
Stromeyer, (89) 1512
Stromeyer, F., (68) 977
Stromeyer, K., (95) 614
Strong, L. W., (4) 1230
Strong, M., (9) 349
Strong, R. A., (100) 429
Strong, R. P., (4) 603
Strong, S. M., (99) 608
Strong, W. M., (26, 27) 1884
Strouse, S., (24) 1695
Stuart, C. A. V., (98) 1063
Stuart, D. D. V., Jr., *319
Stubbs, H. J., (54) 890
v. Stubenrauch, L., (98) 614
Stuber, B., (132) 205 (40) 1142
Stuckert, H., (94) 510
Stucky, J. A., 1417
Studebaker, J. F., (27) 1135
Studzinsky, I. B., (85) 1614
Stukes, J. T., (20) 1054
Stumpf, J., (67) 1796
Stümpke, G., (96) 614
Sturm, M. J., (79) 1137, (83) 1138
Suchanek, E., (105, 106) 359
Sudakova, V. M., (130) 2170
Sudeck, P., (44) 1060
Sudranski, C., (69) 890
Sukhanoff, S. A., (120) 1889
Summerlin, M. T., (48) 1981
Summers, J. E., (29) 350
Sumner, J. B., (46) 605
Surface, F. M., (69) 1697
Surmont, H., (51) 433
Sutcliffe, L. E., (5) 1609
Sutherland, C. G., (100) 510
Sutherland, G. A., (1) 893
Sutherland, W. D., (17) 709
Sutter, C. C., (135) 1328
Sutton, A. C., *2289
Sutton, R. L., *133, *1153 *2126
Swafford, J., (46) 1981
Swale, A. M., (53) 275
Swan, J. M., 349
Swan, R. H. J., (11) 2261
Swanberg, H., 1596
Swanson, C., (44) 1981
Swart, S. P., (58) 1331
Swasey, E., *1950
Sweet, C. D., (5) 1134
Sweitzer, S. E., *991
Swenson, C. G., (122) 510
Swift, W. B., (2) 193, (3) 1502, *1568
Swope, S. D., (79) 607
Sycle, M. C., (119) 2075
Sylvester, R. E., (133) 199
Sym, W. G., (8) 1235
Syme, W. S., (32) 2076
Symes, J. O., (17) 199
Symes, W. L., (8) 278
Synnott, M. J., (102) 892
Syring, (159) 361, (71) 613
Szel, P., (100) 615
v. Szily, P., (111) 282
v. Szontagh, F., (83) 1703

T

Taber, L. B., (94) 2163
Taege, K., (142) 284
Taft, A. E., (60) 1326
Tage-Hansen, C., (116) 892
Tait, D., (114) 892
Tait, W. D., (122) 1139
Taitz, R., (29) 65
Takaki, Y., (53) 710, (16) 1141
Talbot, F. B., (1) 426, (4) 1134, (26) 1880
Taliaferro, R. M., 1977
Tallman, M. H., (90) 2074
Tallo, F., (163) 438
Tanji, Z., (66) 977
v. Tappeiner, F. H., (102) 203, (41) 1330
Tara, G. G., (126) 2170
Taschman, M., (42) 968
Tashiro, S., (11) 508, (65) 969
Tate, M. A., (57) 1790
Taussig, F. J., (126) 892, (3) 1604
Tausz, B., (85) 2169
Taylor, A. E., (38) 605, (80, 81) 970
Taylor, A. S., 1976
Taylor, F., (25) 894
Taylor, F. H., (10) 974
Taylor, G. H., (65) 1056, (119) 1882
Taylor, H. L., (63) 509
Taylor, H. N., (32) 1884
Taylor, J., (34) 1885
Taylor, J. R., (191) 973
Taylor, L. H., (15) 2261
Taylor, R. M., (38) 706
Taylor, W., (77) 1982
Teacher, J. H., (14) 1883
Technau, (47) 976
Techoueyres, (34) 1060
Tecqmenne, C., (22, 23) 809
Tedeschi, E., (93) 2081
Teissier, P., (53) 201
Telling, M., (32) 432
Témoin, (45) 2077
Ten Horn, C., (77) 1887
Tennant, C. E., (28) 196, (56) 352, (30) 509, 1229
Tenney, B., (20) 195, (44) 1421
Terhola, L., (62) 812
Terrenson, E., (192) 439
Terry, C. E., (135) 199, (30) 1880
Terwen, A. J. L., (58) 1331
v. Teubern, F., (91) 1241
Thaysen, T. E. H., (160) 72, (117) 814
Theilhaber, A., (130) 1882
Theisen, C. F., 271, (13) 273, (2) 1694, (90) 1791
Theobald, S., *566
Therre, A., (90) 282
Thiele, F., (75) 2079
Thimm, L., (52) 1987
Thoenes, (66) 1060
Thom, D. A., (69) 1880
Thomalla, C., (70) 2167
Thomas, B. A., (116) 276, (10) 426, (84) 1057, (38) 1421, *1909
Thomas, E., (105) 814
Thomas, E. E., (31) 1324
Thomas, H. M., (6) 1787
Thomas, J. L., (5) 199, (6) 708
Thomas, T. T., (103) 353, *1018, (52) 2261
Thompson, C. W., (59) 969
Thompson, H. B., (118) 198
Thompson, H. T., (15) 894
Thompson, J. A., (39) 1055, (104) 2163
Thompson, J. E., (33) 350
Thompson, L., (38) 273, (47) 969, (103) 1507
Thompson, R., (27) 64, (41) 279
Thompson, W. G., (82) 197
Thompson, W. J., (53) 60, (5) 354
Thompson, W. L., (49) 2160, (56) 2161
Thomson, D., (4) 63
Thomson, F. H., (38) 200
Thomson, J. A., (4) 894, 1362, 2041
Thomson, St. C., (22) 64, (49) 279, *989, (141) 1882
Thomson, W. F., (154) 1699
Thomson, W. H., (64) 1790
Thomson, W. S., (33) 894
Thorne, F. H., (76) 1507
Thorning, W. B., (113) 608
Thornton, G. G., (89) 1697
Thornton, W. L., (131) 892
Thorpe, J. H., (93) 1697
Thrash, E. C., (48) 2073, 2159
Threlkeld, A. E., (77) 429
Thresh, J. C., (20) 1508
Thro, W. C., (42) 804, (146) 971
Throckmorton, G. K., 1499, (72) 2161
Throckmorton, T. B., *1155, (39) 1880
Thurlow, A. A., (133) 1608, (58) 1880
Thursfield, H., (38) 432
Thyng, F. W., (2) 2159
Tice, F., (110) 1983
Tichy, H., (66) 897
Tideström, H., (92) 1616
Tidy, H. L., (42) 432, (45) 709, (25) 1329
Tièche, (69) 1702
Tiedemann, A., (96) 436
Tiegel, M., (35) 976
Tietze, A., (71) 435, (43) 976, (46) 1238
Tiffany, F. B., (161) 973
Tileston, W., 269, (25) 2071
Tilney, F., 1976
Tilzer, A., (114) 429
Timberlake, G., (104) 1507
Timme, A. R., (51) 1697
Timme, W., (47) 1231
Tirard, N., (7) 2261
Tirumurti, T. S., (43) 1421, (41) 2076
Tisserand, G., (48) 356
Titcombe, R. H., (47) 279
Titus, E. W., (84) 353
Tivnen, R. J., *1756, (116) 1882
Tixier, L., (31) 1059
Tizzoni, G., (140) 72, (71) 1614
Tobias, P., (82) 1331
Tobie, W. E., (67) 606
Tobiesen, F., (84) 713
Tobler, L., (141) 360
Tocco, E. L., (62) 2264
Todd, F. C., *3
Todd, T. W., (50) 352, (29) 706, (48) 1231
Tognoli, E., (136) 72
Tomaselli, A., (170) 439
Tomkinson, J. G., (12) 1700
Tompkins, J. M., (59) 1055
Tonney, F. O., (25) 2159
Torek, F., (104) 510, (29) 1605 (37) 2263
Torland, T., (94) 1233
Torres, M., (72) 1144
Torres, T., (251) 364
Towle, H. P., (4) 426, (50) 1981
Town, C. H., (62) 1880
Townsend, F. C., (71) 1507
Townsend, J. H., (7) 2159
Tracy, M., (1) 193, (69) 1232
Tracy, S. E., (91) 510
Trallero, M., (60) 516
Trask, J. W., *1845
Traube, J., (55) 1331
Trautmann, G., (129) 205
Travassos, L., (187) 286, (75) 1614
Treadway, W. L., (91) 1881
Tredgold, A. F., (21) 1329
Trendelenburg, W., (93) 203
Treub, H., (27) 975, (76) 1144
Trèves, A., (57) 202, (40) 356, (38) 514
Treves, F., (6) 1883
Triepel, H., (61) 1238
Trillat, T., (76) 281
Trindler, F. H., (85) 1327
Troell, A., (72) 202, (99) 282, (28) 1141, (32) 1237, (84) 1797
Trotter, W., (31) 1884, (13) 2075
Trowbridge, E. H., (31) 2260
Truby, A. E., (63) 1506
Trudeau, E. L., (57) 429
Truelsen, T., (27) 605
Truesdale, P. E., (17) 508
Truesdell, E. D., (29) 1231
Truslow, W., (20) 58
Tscherning, E. A., (121) 714
Tschertkoff, J., (133) 205, (42) 1429
Tschistowitsch, N. J., (137) 360
Tubby, A. H., (28) 894
Tucker, B. R., (115) 63, (73) 806
Tucker, G. E., (34) 889
Tuczek, K., (51) 1430
Tuffier, T., (50) 201, (50) 428, (43) 515, 697, (45) 1885
Tuke, A. W., (24) 709
Tulasne, A., (46) 896
Tuliato, D. P., (139) 72
Tully, E. J., (18, 28) 2159
Tunnicliff, R., (30, 31) 1504
Tupper, P. Y., (78) 1790
Turberville, J. S., (112) 2075
Turck, R. C., (39) 1325, 1475
Turnbull, A., (12) 278
Turnbull, W. G., (107) 1234
Turner, B. B., (97, 98) 970, (82) 1425
Turner, G. G., (159) 1608
Turner, G. I., (89) 1145
Turner, J. G., (58) 279
Turner, W. A., (11) 1793
Tuszewski, (140) 360
Tweddell, F., (88) 275
Twichell, D. C., (118) 971
Twyman, E. D., (98) 1327
Tyler, G. T., (94) 1056
Tyler, G. T., Jr., (87) 807
Tyrrell, J. B., (55) 1697, (97) 1881
Tyson, H. H., *915

U

Uchermann, V., (100) 1146
Uffenheimer, A., (60) 1796
Uffreduzzi, O., (104) 1888, (114) 2170
Uhle, A. A., (39) 1421
Uhlenhuth, E., (26) 2259
Ujihara, K., (109) 282
Ullman, E., (26) 967
Ullmann, K., (211) 362
Ulrici, H., (61) 1987
Umeda, N., (61) 897
Underhill, A. J., (125) 510
Underhill, F. P., (64) 61, (3) 887, (62, 70) 1232
Underwood, H. L., *755
Ungar, J., (214) 362
Unger, E., (62) 897, (57) 2078
Unna, K., (46) 2263
Unna, P., Jr., (38) 1794
Urbach, J., (115) 1705
Ussher, C. D., (88) 1233

V

Vacher, L., (57) 356
Vaglio, R., (122) 1706
Vail, D. T., (135) 1608
Vaillard, L., (7) 974, (9) 1329
Valagussa, F., (81) 1989
Valbusa, S., (156) 206
Valk, F., (113) 354
Vallance, J. T. J., (114) 1139
Van Allen, H. W., 1228, (17) 1230
Van Assen, J., (92) 1989
Van Capellen, D., (104) 1064
Van Cleave, H. J., (74) 1424
Van den Berg, H. J., (91) 62
Van der Bent, T. J., *1631
Van der Bergh, A. A. H., (91) 1989
Van der Bogert, F., (115) 198
Vanderburgh, E. D., (22) 427
Vanderpoel, W. B., (141) 971
Van der Scheer, W. M., (86) 1989
Van der Torren, J., (90) 1989
Vander Veer, E. A., (17) 2070
Van der Wal, K., (121) 520
Van Eman, F. T., (92) 1327
Van Hook, W., (152) 276
Van Kaathoven, J. J. A., (21) 2310
Van Loghen, J., (124) 616, (102) 980

Van Meter, B. F., (78) 429
Vannier, M. L., (115) 971
Van Norman, K. H., (113) 971
Van Renesse, W. D., (120) 616
Van Rensselaer, H., 269
Van Rijnberk, G., (105) 1063, (114) 1244
Van Sickle, F. L., (58) 969, (171) 973
Van Slyke, D. D., (116) 204, (60-62) 1697
Van Slyke, L. L., (64, 65) 1232
Van Valkenburg, C. T., (112) 1244
Van Zwaluwenburg, J. G., (50) 509
Vardon, T. W., (147) 1699
Varlpaeff, B. P., (256) 364
Varney, H. R., (41) 1055, (32) 1135
Vas, J., (66) 1988
Vaughan, J. H., (178) 973
Vaughan, J. W., *1258
Vaughan, V. C., (72) 197, (96) 198, *365, (56) 1697, 1818, 1926
Vaughan, V. C., Jr., (36) 2260
Vaughn, E. H., (112) 1426
Vautrin, A., (66) 280
Veasey, B. R., (60) 352
Veau, V., (56) 202, (39) 356
Vecki, V. G., (35) 1231
Veeder, B. S., 132, (10) 887, (4) 1502, (7) 1978
Veeder, E. B., (13) 1695, *1750
Vegas, M. H., (105) 1327
Veil, W. H., (128) 360
Veit, J., (103) 2169
Venable, C. S., (137) 512
Vera, M., (48) 1789, (11) 2259
Verbrycke, J. R., Jr., (65) 606, (79) 1056
Verdelet, (56) 710
Verhoeff, F. H., *13
Verkke, T., (186) 439
Verrienti, P., (122) 2170
Vertes, O., (95) 1704
zur Verth, M., (71) 1430, (65) 1613, (51) 2264
Veselkin, M. V., (107) 2081
Vest, C. W., (17) 1504
Viannay, C., (41) 611
Vidal, (38) 611
Vidoni, G., (166) 438
Vidt, C. E., (76) 275, (85) 892
Vierheilig, J., (44) 1330
Vincent, (42) 1985
Vineberg, H. N., (3) 507
Vinogradoff, V. N., (95) 1989
Vinson, J. C., (15) 1054, (120) 2075
Vioran, R. L., (116) 1698
Virchow, H., (35) 1794
Viscontini, C., (72) 898
Visscher, L. G., (41) 1697
Viton, A., (110) 1064
Vitoux, G., (49) 1701
Vitry, G., (85) 281
Voegtlin, C., *1094
Voelcker, F., (68) 2167
Vogel, J., (86) 979
Vogel, K., (55) 2077
Vogel, K. M., (75) 890
Vogel. R., (220) 362, (49) 1885
Vogelius, I. F., (197) 286
Vogt, H., (104) 70
Vogt, R., (108) 1334, (134) 2170
Voigt, J., (80) 1512
Volhard, F., (56) 1795
Volkmann, J., (52) 1613
Volkovitch, N. M., (90) 1145
Volland, (156) 284
Vollhardt, W., (129) 71
Voorhees, I. W., (68) 2073, (124) 2164
Voorhoeve, N., (173) 285
Vorderbrügge, P., (59) 1060
Voronoff, (30) 810
de Vries, H., 1222
de Vries, P., (125) 616
Vulliet, H., (92) 282
Vulpius, O., (240) 363

W

Waardenburg, P. J., (102) 1063
Wachenheim, F. L., (40) 1605
Wack, P., (91) 713
Wada, T., (80) 1145
Wade, H. A., (9) 2070
Wade, H. W., (49) 1055, (81) 1507, (34) 1789, (92) 1982
Waegeler, H., (95) 1242
Wagner, A., (237) 363, (114) 519, (67) 897, (27) 1141, (57) 1987
Wagner, E. A., (5) 887
Wagner, F., (121) 70, (181) 361
Wahl, H. J., 132
Wainwright, J. M., (85) 2074
Waitzfelder, E., (79) 2074
Walcher, Jr., (147) 206
Waldner, P. J., (95) 1057
Walker, A. D., (139) 893
Walker, A. W., (76-85) 2162
Walker, C. B., *846
Walker, E., (40) 196
Walker, I. C., (28) 1695
Walker, I. J., (44) 352
Walker, J. W. T., (21) 200, (57) 279
Walker, N., (9) 1699
Walker, W. O., (18) 354
Wall, F., (23) 709
Wall, G. A., (109) 1138
Wallace, J. S., (1) 973
Wallace, R., (137) 431
Waller, C. C., *867
Wallersteiner, E., (69) 977
Walls, F. X., (10) 194
Walsh, F. C., (151) 1699
Walters, C. F., (4) 512
Walters, W. A., *1666
Walther, C., (31) 1794, (43) 1985
Walther, F., (29) 1428
Walther, H., (21) 2262
Walther, H. E., (84) 203, (68) 1420
Walther, H. W. E., (55) 1055
Walton, A. J., (42) 1421, (39) 1885, (21) 2259
v. Walzel, P. R., (99) 358, (77) 711
Walzer, F., (65) 1510
Wangerin, W., (94) 69, (183) 361
Wanner, P., (51) 1986
Wanner, R., (201) 362
Warbasse, J. P., 264
Ward, A. R., (120, 124) 430
Ward, H. S., (77) 806
Warfield, L. M., (149) 1328, (140) 1983, *2287
Warnekros, K., (92) 813
Warren, B. S., 51
Warren, L. E., 595
Warren, R., (22) 1610
Warren, W. R., (14) 1054
Washburn, E., (49) 1506
Wassermann, S., (77) 977
Wasserthal, (53) 433
Watanabe, W. K., (73) 1697
Watanabe, Y., (34) 355
Waterhouse, A. T., (30) 1793
Waterman, P., (82) 1327
Wathen, J. R., (142) 199, (94) 1697
Watkins, A., (57) 1424
Watkins, J. A., (3) 1420
Watkins, J. T., (41) 60
Watkins, T. J., (85) 1056
Watson, A. W., (63) 197
Watson, B. P., (44) 60, 765
Watson, C. W., (88) 970
Watson, H. G., (39) 1696
Watson, J. H., (16) 1508, (27) 1610, (35) 1700
Watson, T., (119) 1139
Watson-Williams, P., (3) 512
Watters, W. H., (114) 1698
Watts. H. F. R., (52) 2160
Waugh, G. E., (7) 2075
Waugh, W. F., (72) 509, (111) 2163
Weaver, J. S., (85) 197
Webb, G. B., *1098, (32) 2071
Webb, J. E., (15) 199
Webb-Johnson, C., (1) 1139, (8) 1883, (18) 2075
Webber, S. G., (61) 1424
Weber, F., (194) 440
Weber, F. P., (2) 893
Weber, T. K., (83) 1145
Wechselmann, W., (198) 362, (57) 1430
Wechsler, H. M., (77) 1137
Weckowski, (44) 1238
Wedd, A. M., (72) 969
Wedd. B. H., (32) 278
Wedekind, C. H., (58) 2167
Weed, L. H., (43-45. 48) 1506
Weekers, L., (21) 809
Wegefarth, P., (46-48) 1506
Wegener, E., (70) 1331
Wegener, W., (53) 1987
Wehmer, F., (51) 612
Weible, R. E., (129) 1882
Weichert, H., (49) 1143
Weidler, W. A., (130) 1328
Weidman, F. D., (33) 1789
Weigert, R., (85, 86) 1063
Weihe, F., (228) 363
Weil, (98) 358
Weil, A. I., (108) 1698, (94) 1982
Weil, G. C., (35) 804
Weil, R., 192, (41) 706
Weil, S., (53) 976
Weill, A., (54) 66, (77) 281, (43) 811
Weill, E., (62) 434
Weinberg, M., (47) 1142
Weiner, E., (155) 438, (53) 1143
Weiner, S., (54) 1430
Weinert, A., (97) 203, (54) 1060
Weintraud, W., (57) 2078
Weinzirl, J., (5, 21) 2159
Weisenburg, T. H., *1813
Weiser, E., (63) 977
Weiskotten, H. G., (129) 1328
Weispfenning, (42) 1060
Weiss, H., (74) 613
Weiss, J., (39) 1330
Weiss, L., *635
Weiss, R., (70) 509, (51) 1506
Welborn, J. Y., (81) 275
Welde, E., (79) 1512
Weller, C. V., (10) 704
Wells, D. W., (62) 1055
Wells, H. G., (85) 435, (32) 605, (48) 706, (63) 1232, (70) 1697
Wells, J. H., (24) 427
Welter, A., (60) 1060
Weltmann, O., (150) 438, (94) 518
Welty, C. F., (18) 273, (45) 889
Welzel, R., (42) 1330
Wenkos, S., (37) 509
Wepfer, A., (64) 1060
Werder, X. O., 1418, (11) 2070
Werelius, A., *1338
Werneck, C., (75) 1144
Werner, (77) 1511
Werner, P., (64) 812
Wertheim, E., (63) 812
Werther, J. F., (72) 68
Wessler, H., (23) 1095, (120) 1698
West, C. J., (74, 76) 969, (85) 970
West, S., (6) 278
Westermark, F., (90) 1616
Westmacott, F. H., (10) 2261
Weston, P. G., (44) 706
Wetherby, B. J., (105) 1234
Wetherill, R. B., (70) 2161
Wever, E., (87) 358
Wexberg, L. E., (83) 2168
Weygandt, W., (94) 813, (88) 1704, (73) 2167
Whale, H. L., (26) 1329
Whalen, C. J., (49) 60, (41) 428
Wheeler, H. B., (116) 971
Wheeler, J. B., (95) 708
Wheeler, M. C., (80) 1137
Wheeler, W. M., (17) 1324
Wheelon, H., (8) 272, (27) 888, (16) 1604
Whelpley, H. M., (74) 2074
Wherry, W. B., (27) 1504, *2041
Whinery, S., (7) 1420
Whipham, T. R. C., (2) 354, (13) 2261
Whipple, G. C., (14) 1420
Whipple, G. H., (41) 1135
Whitall, J. D., (104) 1607
Whitamore, V. N., (23) 1700
Whitby, V., (6) 431
White, B., (46) 706
White, C. J., *459, (75) 1697
White, C. P., (47) 279
White, C. S., (135) 1234, (140) 1882
White, F. W., (60) 1424, (42) 2072
White, G. W., (75) 1982
White, J. V., (47) 509
White, P. G., (129) 1983
White, W. C., (50) 1506, (34) 1605
White, W. H., (44) 432, (20) 610, (47) 710, 1210
Whitelaw, T. H., (124) 276, (144) 1699
Whiteside, G. S., (122) 1608
Whiteside, L. C., (137) 1983
Whiting, A. D., *474
Whitman, R., (32) 1605
Whitman, R. C., (25) 1605
Whitmore, A., (8) 64
Whitney, C. E., (71) 509
Whittaker, H. A., (10) 1420
Wichmann, P., (99) 203, (146) 360
Wichmann, S. E., (67) 67
Wickenden, S., (30) 355
Widal. F., (54) 66, (77) 281, (45) 612, (67) 711, (43) 811
Widerøe, S., (166, 167) 206, (88) 979, (138) 2170
Wiebrecht, (40) 1060
Wiener, E., (112, 113) 1705
Wiener, M., (14, 20) 967, (76) 2074
Wiener. S., (7) 349
Wienskowitz, H., (64) 2078
Wiersma. E. D., (91) 1989
Wieting-Pascha, (47) 1060
Wiggers, C. J., (10) 603, (28) 888
Wiggs, L. B., (113) 63
Wightman. H. W., (66) 1137
Wilborn. F., (76) 812
Wilbouchewitch, M. N., (87) 281, (56) 434
Wilbrand. E., (132) 437
Wilbur. C. L., (69) 1790
Wilbur. R. L., *302, (29) 1695, (23) 1980, 2156
Wilcox. R. W., 271, (27) 427, (116) 1327
Wildbolz. H., (119) 359, (232) 363
Wilder, R. M., *937
Wilder, W. H., (86) 807
Wildman. H. V., Jr., (90) 1607
Wile, I. S., (2) 2070
Wile, U. J., (97) 62, *137, (52) 509, (3) 967, (31) 1135
Wilenko, G. G., (126) 283
Wilhelm, M., (85) 812
Wilkerson, F. W., (74) 806, (90) 1507
Wilkie, D. P. D., (2) 1235, (8) 1609
Wilkins, W. A., (46) 60
Wilkinson, D., (2) 1791
Wilkinson, G., (5) 974
Wilkinson, W. C., (37) 1885
Willard, D. P., (118) 276
Willcocks, R. W., (36) 432
Wille, V. A., (89) 1798
Willets, D. G., (121, 122) 430, (137, 139) 1698
Willette, R., (52) 811
Williams, A. E., 1780, (18) 1793
Williams, A. W., (95) 429, (7) 1053, (14) 1700
Williams, B. F., (86) 1881
Williams, B. G. R., 1222
Williams, C. M., (71) 1137
Williams, E. C., (6) 512
Williams, E. H., (66) 1790, (65) 2073
Williams, E. M., *403, (54) 606, (12) 1323, (68) 1606
Williams, G., 2063
Williams, G. H., (9) 703, *936
Williams, H. B., (17) 1604
Williams, H. J., (18) 1054
Williams, J. W., (124) 2075
Williams, L., (21) 354
Williams, L. L., (88) 197, (3) 1878
Williams, P. F., (9) 1694
Williams, T. A., (28) 706, (16) 803, (136, 138) 1234, (91) 1507, (12) 1604, (53) 1790, (49) 1880, *2203
Williams, W. P., (47) 1325
Williams, W. R., (45) 273
Williamson, G. M., (38) 1506
Williamson, G. S., (15) 2075
Williger, F., (82) 2079
Willis, A. M., (129) 1698
Willis, B. C., (128) 1234, (108) 1426
Willmore, J. G., (24) 278
Willmoth, A. D., (80) 429, 1502, (86) 1697
Willson, H. S., (47) 197, (40) 1506
Willson, P., (122) 63
Willson, R. N., (16) 350, *981, *2178
Wilmanns, R., (58) 1144
Wilms, M., (118) 436
Wilson, A. D., (43) 352
Wilson, D., (144) 971
Wilson, D. W., (59) 60
Wilson, F. E., (16) 354
Wilson, F. N., (100) 62
Wilson, H. C., (15) 709
Wilson, H. R., (16) 2261
Wilson, J. A., (6) 1139
Wilson, J. H., (59) 279
Wilson, L. B., (41) 1789
Wilson, N. L., *1638
Wilson, R. C., (47) 1981
Wilson, S. A. K., (4) 1791
Wilson, T., (19) 808, (141) 1608
Wilson, W., (52) 279, (9) 1139
Wilson, W. H., (12) 609
Wimmer, A., (82) 1797
Winckler, E., (86) 1331
Wing, F. E., (20) 2159
Wingfield, R. C., (23) 610
Winslow, C. E. A., *1621
Winslow, E., (127) 520
Winslow, P. V., (7) 58
Winslow, R., (20) 508, *1165
Winter, D., (38) 1141
Winter, G., (131) 283
Winters, J. E., (6) 507
Wintz, H., (39) 1142
Wirgman, C. W., (42) 279
Wise, F., *734, (33) 1135
Wishard, J. G., (53) 1697
Wislocki, G. B., (16) 1504
Withrow, F., (129, 136) 276, (103) 510
Witzel, O., (22) 967
Woelfel, A., (92) 970
Wohl, M. G., (13) 1604
Wolf, W., (119) 436
Wolfe, C. T., (70) 353
Wolff, F. G., (51) 612
Wolff, M., (47) 1238
Wolff, S., (81) 1703
Wolff, W., (77) 614, (51) 1510
Wollenberg, R., (49) 2264
Wollstein, M., (34) 1135, (5) 1787
Woloschin, A. D., (59) 1701
Wolter, F., (34) 1510
Wood, A. C., (103) 429
Wood, F. W., (120, 124) 430
Wood, H. C., Jr., (103) 62
Wood, H. W., (18) 508
Wood, J. W., (51) 279
Wood, M. A., (152) 1699
Wood, N. K., *1378
Wood, W. C., (58) 197
Woodbury, F. T., (77) 197
Woodcock, H. D., (5) 1699
Woodhead, G. S., (7) 1058, (8) 1427, (20) 1428
Woodruff, H. W., (111) 1426
Woods, C. S., *842
Woods, E. B., 55
Woody, S. S., *861
Woolley, P. G., (102) 62, 597, *2279
Woolsey, G., (85) 708, (142) 971

Woronytsch, N., (148) 438
Worrall, R., (17) 610
Wrench, G. T., 1129
Wright, B. L., (82) 353
Wright, B. W., (47) 1137
Wright, F. R., (64) 352
Wright, H. R., (140) 1328
Wright, H. W., (30) 1231, (45) 1697
Wright, R. E., (22) 709
Wright, R. H., (132) 1698
Wright, T. E., 2158
Wrobel, K., (56) 976
Wulf, G., (202) 362
Wurtz, (57) 1701
Würtzen, C. H., (77) 1988
Wyard, S., (25) 278, (16) 1058
Wydler, A., (88) 614
Wyeth, J. A., (74) 1326
Wylie, C. B., (57) 197
Wyman, E. T., (2) 1502
Wynkoop, E. J., (127) 1328
Wynne, F. E., (40) 200
Wynne-Roberts, R. O., (109) 2075

Y

Yakimoff, N. K., (260) 364
Yakimoff, V. L., (260) 364
Yates, J. L., (38) 60, *2225
Yawger, N. S., (113) 1234, *1348
Yearsley, M., (38) 1885
Yeatts, S. T., (67) 275
Yeomans, F. C., (55) 1137
Yoosuf, A. K., (109) 1881
Yorke, C., (18) 199
Yorke, W., (11) 199
Youchtchenko, A. I., (176) 439
Young, C. C., *1031
Young, J., (15) 1884
Young, J. H., (16) 1970
Young, J. K., (26) 59, (92) 510, (86) 1425
Young, W. H., (130) 63
Young, W. J., (10) 974, (12) 1140
Young, W. M., (15) 1236

Z

Zachariae, P., (96) 1146, (79) 1432
Zacharias, E., (57) 2167
Zacharias, G., (116) 204, (61) 1697
Zade, H., (69) 434
Zadek, J., (89) 713
Zahradnicky, (74) 202
Zander, E., (136) 616
Zander, P., (100) 713
Zangemeister, W., (95) 69
Zannini, M., (110, 111) 814
Zannini, W., (245) 363
Zapelloni, L. C., (144) 72
Zbinden, T., (96) 2074
Zekete, A., (100) 1888
Zentmayer, W., *572
Zesas, D. G., (146) 206
Ziegler, S. L., *839
Ziembicki, G., (68) 1613
Zigler, M., (58) 806
Zimmerman, B. F., (73) 353
Zimmerman, V., (190) 439
Zimmermann, E., (162) 206
Zimmermann, J. B., (13) 1323
Zimmermann, R., (64) 67
Zingher, A., (14) 704, *859
Zinke, E. G., *815, (58) 2073
Zinn, W., (81) 1512
Zinsser, H., (75) 1606, (23) 2259
Zobel, A. J., (34) 1231
Zondek, B., (66) 1238
Zondek, H., (123) 360, (59) 1331
Zondek, M., (27, 28) 1509
Zöppritz, B., (134) 360
Zörkendörfer, (92) 69
Zubizarreta, J. M., (157) 72
Zucker, T. F., (35) 514
Zuckerkandl, O., (62) 1430
Zueblin, E., 269, 271
Zuloaga, P., (44) 201
Zumhasch, A., (172) 361
de Zwaan, J. P. K., (94) 1063
Zweifel, E., (60) 67, (53) 1330
Zweifel, P., (89) 979, (10) 2169
Zwirn, D., (47) 201

INDEX TO PAGES

OF THE JOURNAL, ACCORDING TO WEEKLY ISSUES—VOLUME LXIII, JULY-DECEMBER, 1914

Pages	No.	
1- 132—	1	July 4
133- 206—	2	July 11
207- 286—	3	July 18
287- 364—	4	July 25
365- 440—	5	Aug. 1
441- 520—	6	Aug. 8
521- 616—	7	Aug. 15
617- 714—	8	Aug. 22
715- 814—	9	Aug. 29
815- 898—	10	Sept. 5
899- 980—	11	Sept. 12
981-1064—	12	Sept. 19
1065-1146—	13	Sept. 26
1147-1244—	14	Oct. 3
1245-1334—	15	Oct. 10
1335-1432—	16	Oct. 17
1433-1514—	17	Oct. 24
1515-1616—	18	Oct. 31
1617-1706—	19	Nov. 7
1707-1798—	20	Nov. 14
1799-1890—	21	Nov. 21
1891-1990—	22	Nov. 28
1991-2082—	23	Dec. 5
2083-2170—	24	Dec. 12
2171-2264—	25	Dec. 19
2265-2394—	26	Dec. 26